JAN. 22 1960

PETROLEUM WEEK

A McGRAW-HILL PUBLICATION

Federal controls slow gas sales, so . . .

Producers push for 'home' markets . . . 15

Controls set Europe's price pattern 18

Drilling brightens Alaska's hopes 25

Fertilizer cuts seismic blast costs 30

Refinery power costs can be trimmed 45

Is nuclear processing practical? 48

Shell joins liquid methane marketing 59

Paris tightens grip on Sahara oil 61

Gasoline 'ad' plan gets limited O.K. 78

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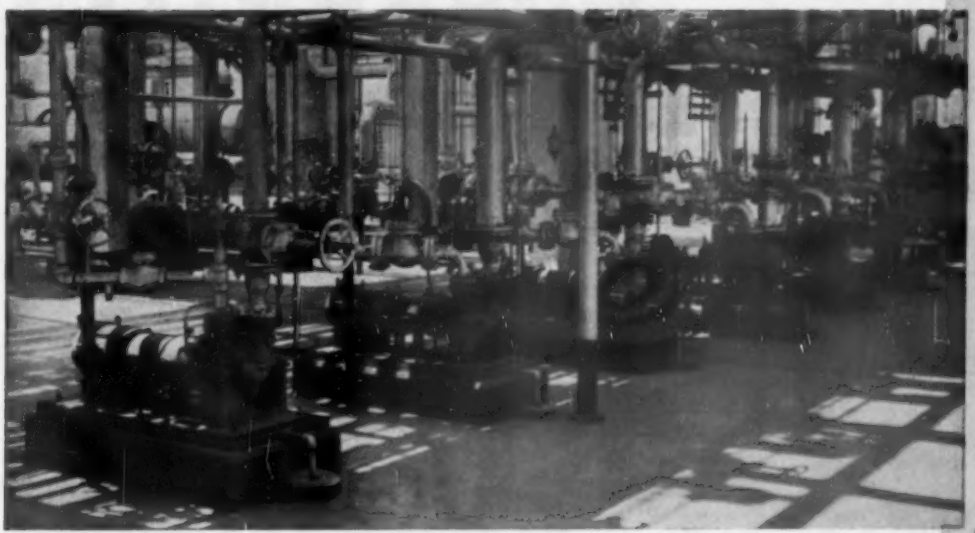

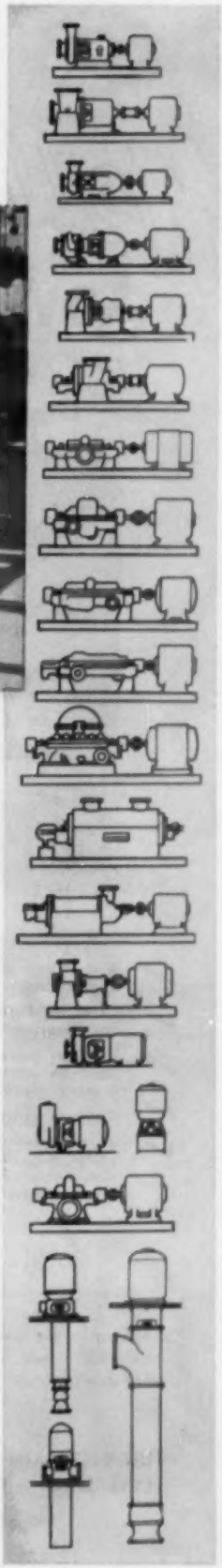

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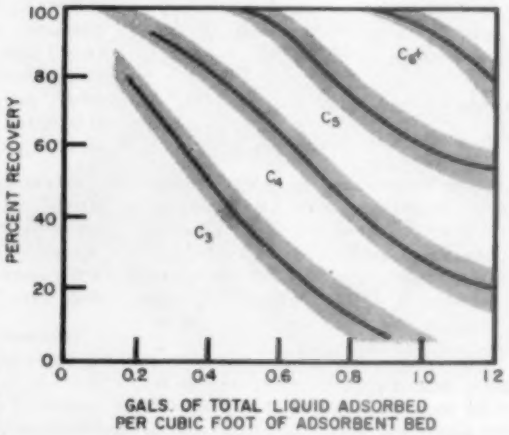

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INSIDE Slant

ACCEPT THE BLAME!

It seems that refiners never learn.

No other conclusion can be drawn from their operations in December.

After the industry had spent the greater part of the last half of 1959 putting its house in order, refiners did their level best in December to undo the good job.

It was a fault of refiners in the first half of 1959 that necessitated corrective orders by some state regulatory bodies in the second half. In fact, they continued excess refinery runs even into the second half.

To be more pointed, here's what John G. Winger, vice-president of the Chase Manhattan Bank, had to say in his monthly review:

"Refiners, as a group, failed to exhibit sufficient restraint in December. Instead, they boosted refinery runs by 235,000 b/d. There is no statistical evidence that this increase was needed, even if the December weather had been normal."

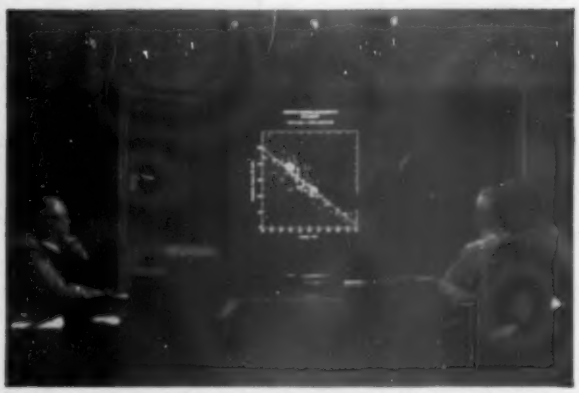
And yet refiners continue to complain about the low margin they are realizing from their products.

Have they ever stopped to consider that the entire blame for this can be laid to their own high runs?

LeRoy Menzing
EDITOR

Meet Ethyl's Alon Cole

Chief Refinery Technologist in the Eastern Region



1. For a group of refining executives, Cole interprets the findings of one of the many technical studies made available to Ethyl customers. In this instance, the subject is Ethyl's 1959 Premium Gasoline Antiknock Behavior Study.

4. At a round-table technical conference with an oil company management group, Cole discusses results of a special engineering study completed for them by Ethyl.

Ethyl's experienced Refinery Technologists offer their help to oil companies as a service . . . typifying Ethyl's belief that service is just as important as product.

ETHYL CUSTOMERS know Alon Cole as a man who can be particularly helpful because he has had experience on both sides of the desk.

Alon graduated from Syracuse in 1942, and went straight into refinery work for a major oil company. Ten years later, after handling a number of technical and supervisory jobs at the refinery, he brought his comprehensive experience to Ethyl.

Today, as one of Ethyl's Chief Refinery Technologists, Alon has the important job of applying Ethyl's Refinery Technology Program to the customer's individual refining problems.

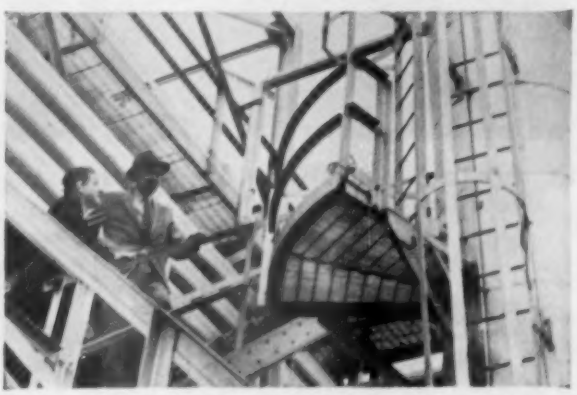
The past few months, for example, Alon has been involved in discussing the advantages of higher TEL concentrations, particularly from the viewpoint of increased road performance . . . and has also helped explain to customers the potential applications of Ethyl's new manganese-TEL formulation, Motor 33 Mix.

Alon Cole—like his counterparts across the country—is a good man to call in on a refining problem. The way he operates, and some of his more important activities are shown here.

2. Periodically, the Refinery Technology staff meets to exchange information and discuss problems. Here Cole and Dale Buerstetta (standing) discuss a test program with T. W. Warren, head of the Detroit Refinery Technology Division.

3. With an oil company manufacturing executive, Alon reviews an Ethyl report on Multicomponent Blending Computations. Such Refinery Technology reports are made available to the industry for adaptation to individual refining situations.

5. At Ethyl's Detroit Research Laboratories, Cole checks with a project engineer on the status of a customer project on fractional analysis of gasoline streams.



6. First-hand knowledge of customers' refining equipment often helps Ethyl's refinery technologists work with them toward optimum utilization of "Ethyl" Antiknock Compounds.

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DEPT/Opinions

Views That Make News . . .

"As the decade of the 1950s ends, and we face the challenge of an expanding economy in the 1960s, the wisdom of sound governmental policies that assure adequate petroleum supplies is apparent.

"Never before in its 100-year history has the domestic industry been in a position to supply as much of the oil and gas so essential to economic progress and national security. Never before has there been a greater need to maintain that position as a powerful deterrent to world aggression."

—GORDON SIMPSON
Retiring President
Independent Petroleum Assn. of America

"Now we enter a new decade. The world's chief preoccupations will continue to be the same two issues: avoidance of war, and economic improvement.

"But the basic ideas and policies by which in the Fifties the world sought to achieve these two goals no longer fit the radically changed circumstances of the quite different world of the Sixties.

"Those ideas and policies of the immediate postwar world must be in large part discarded or revised, their place taken by ideas more suited to the state of world affairs which mankind must face in the decade just begun."

—DAVID E. LILIENTHAL
Chairman
Development & Resources Corp.

"The development of new sources of production, either indigenous to or near the main consuming areas as in the Sahara, will mean a slower rate of growth for tanker demand than would otherwise have been the case. Nevertheless, the requirements for tanker tonnage should continue to increase, and there is an ample margin of available vessels to cope with increased requirements."

—SIR NEVILLE GASS
Chairman
British Petroleum Co.

. . . and Letters

Dear Sir:

Under your article "Deep Refrigeration Extracts Helium" [PW—Dec. 18'59,p44], please refer to the last five paragraphs.

We had generally supposed the extent of the Northeastern Arizona helium field was now widely known, but apparently accurate information is not yet broadcast:

The Four Corners area of Arizona, Colorado, Utah, and New Mexico, extending southwesterly some 80 mi. in width and more than 200 mi. in length, is now recognized as the largest helium field in the world. More than 12-billion cu. ft. of helium reserves are already tapped and known to exist. This gas ranges from 1% to 2% to as high as 6%, according to analyses available from reliable agencies (the Arizona Oil & Gas Conservation Commission).

Construction of two helium recovery plants are already under consideration by private capital, which declares new processes for reducing plant at costs around $500,000 per plant.

V. P. RICHARDS
Publisher
Holbrook Tribune-News, Holbrook, Arizona

Dear Sir:

The record-breaking refinery runs of the past two weeks have been most destructive to the industry.

This is an engraved invitation to governmental control of throughput.

Certainly there should be enough sense in top places in the petroleum industry for self-control.

MASTON NIXON
President
Southern Minerals Corp.

Dear Sir:

I most heartily endorse your "suggestions for 1960" [PW—Jan.8'60,p3].

H. P. NICHOLS
Executive vice-president
East Texas Oil Assn.

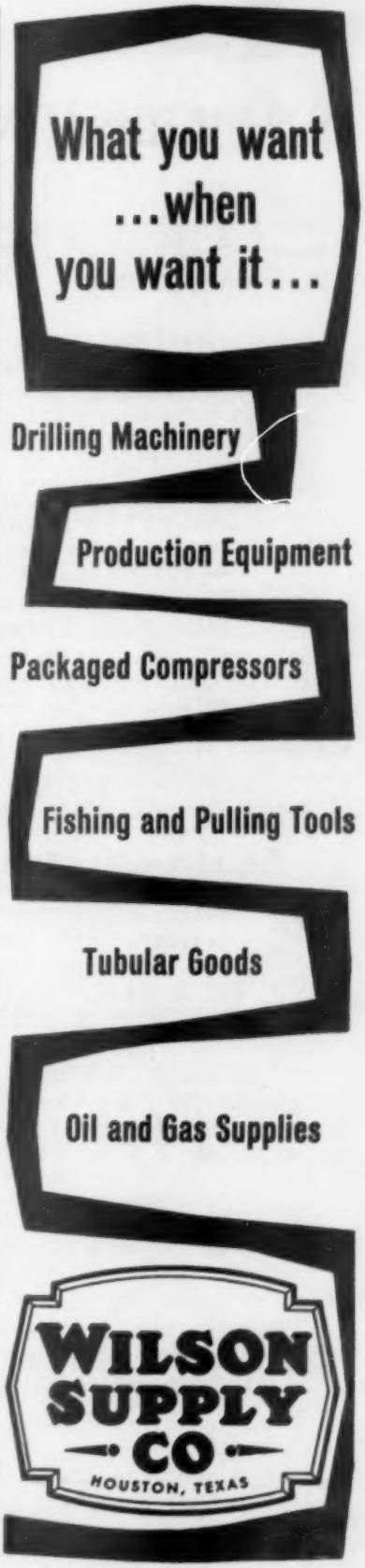
Dear Sir:

The article "Service Counts Most with Buyers" [PW—Dec.11'59,p15] was timely as well as very informative. This type of article should be published more often.

O. L. BLACKER
McGaffey-Taylor Corp.
Long Beach, Calif.

PETROLEUM WEEK will publish each week comments from readers on timely, pertinent subjects. Such expressions are welcome.

Address all such correspondence to LeRoy Menzing, Editor, PETROLEUM WEEK, 330 W. 42nd St., New York 36, N.Y.



Good Wells Make Good News

A Report on Wells That Have Been Improved with Abrasijet

January 22, 1960

Abrasijet* is a new Dowell-developed service that uses high-velocity streams of fluid and abrasive particles, usually sand. The abrasive fluid is jetted against the casing or the hole wall, and has been extremely successful at both perforating and formation cleaning. Here are some results from wells where Abrasijet has been used.

- **Mesa County, Colorado** (Old Gas Well) This well was drilled in 1955 but had been plugged and abandoned. It was cleaned out and pipe was set. Abrasijet was used to perforate into the Morrison sand at a single level — 4073 feet. 6000 gallons of fluid carrying 6000 pounds of sand were jetted. Next, the well was fractured; it then potentialled 2400 mcfd. Other wells in the field usually potential around 500 mcfd.

- **Harper County, Kansas** (New Oil Well) An attempt was made to complete this well with conventional perforating through 4½-inch casing. Formation was the Mississippi Chat at about 4464 feet. After perforating, acid could not be pumped into the formation at 3200 psi. Then Abrasijet was used to perforate, and zone was treated with Mud Acid at 3.7 bpm and 1550 psi. After clean-up, well started flowing 12 bopd without fracturing.

- **Wise County, North Texas** (New Oil Well) This well was to be completed into the conglomerate. Abrasijet was selected to perforate at 5707 feet. Well was fractured down the annulus on the same well set-up. Treating pressures were lower than on offset wells. One month later production had stabilized at 135 bopd on a 13/64-inch choke. This production was 20 to 30 bopd better than from similar wells in the area. In addition, the operator saved over $600 in completion costs.

- **Alberta, Canada** (New Oil Well) Casing was set for this open hole completion at 8680 feet in an 8785 foot hole. The Mississippian was logged between 8705 and 8735 feet. Log indicated only three feet of "good" pay between 8717 and 8720 feet. Abrasijet was used to clean the hole wall. 25 barrels of acid (without sand) were jetted. The formation was then squeezed with 3000 gallons Dowell inhibited acid with a silicate control agent added. After clean-up, the well tested 220 bopd — operator felt this an excellent well, considering the thin pay zone.

Use Abrasijet for better completions, or better workovers of problem wells. For service or detailed information, contact the Dowell office or station nearest you. There are more than 150 locations in the United States, Canada, Venezuela and Argentina. Dowell, Tulsa 1, Oklahoma.

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60-Second Summary / WHAT'S HAPPENING IN OIL

January 22, 1960

dept/INDEX

Production	25
Pipelines	54
Processing	45
Marketing	78
Washington	22
Statistics	75
The Market Trend	76
Key Prices	77
Editorial	84
International	61
Personals	82
Service & Equipment	68

Gas producers are capitalizing on an escape route from the headaches and complexities of federal controls. They're pushing intrastate sales, in which both contracts and prices are firm. . . . p. 15

•

Savings in expenditures for seismic explosives are being made with an oil-coated chemical fertilizer. In one area, equivalent dynamite costs were cut in half. . . . p. 30

•

Russia's claim that it has applied nuclear radiation to processing finds U.S. refiners interested but skeptical. Research indicates that operating costs are prohibitive. . . . p. 48

•

Higher producer incomes should mean greater drilling in 1960, but competition for contracts will be stiff, says the American Assn. of Oilwell Drilling Contractors. And contractors' costs are expected to show a further increase. . . . p. 19

•

Look for fast development of France's state-controlled refining and marketing setup. That seems to be in the cards as a result of last week's cabinet shakeup. . . . p. 61

•

Constock's global bid for liquid methane markets has been strengthened considerably. Royal Dutch Shell, one of the world's largest marketers, has joined the venture. . . . p. 59

•

Alaska's hopes of an oil-producing industry are getting brighter. Costs are high, but oil and gas finds are enhancing prospects. . . . p. 25

•

Eisenhower's budget message to Congress this week generally disappointed the oil industry. He asked for an additional ½¢ federal gasoline tax—which will be opposed in Congress—and he failed to mention natural gas legislation. . . . p. 22

•

A British refinery is using free-piston gas generators to hold power costs down. A novel engineering feature is incorporated in the design. . . . p. 45

•

Last year's record growth in the natural gas industry is due in part to its line-building and storage-expansion programs. Both areas reflected significant activity in 1959. . . . p. 54

•

Key gasoline marketers agree that an industrywide promotion program to stimulate demand is a good idea. But they're not ready yet to undertake a multimillion-dollar program. . . . p. 78

Up to the Minute / SIGNIFICANT LATE NEWS

AT-A-GLANCE PETROLEUM WEEK Copyright

January 22, 1960

Domestic crude production next month will average close to 7.3-million b/d, the highest since May, 1957. That's the indication from the allowables that have been set in the two largest producing states.

The Texas Railroad Commission this week decided on a ten-day schedule for February, the third consecutive ten-day order. The initial allowable will average 3,048,506 b/d for the 29-day month, up 120,983 b/d over mid-January. Louisiana, operating under a two-month order, will continue its allowable based on 35% of the March, 1953, depth formula. Louisiana's output is now at a peak of 1,067,000 b/d.

Major crude buyers differ considerably on the trend of demand. Phillips Petroleum Co. told the Railroad Commission that the "allowable should be sharply curtailed." The company said it could operate on an eight-day schedule next month, instead of the ten days indicated earlier. "Unusually warm weather" has trimmed demand, a spokesman said. With February demand usually below January, he added, "we fear a serious situation later—if we are not already in one." But Atlantic Refining Co. said the pattern of demand indicated an 11-day schedule in February, rather than the nine it recommended earlier. Seven large buyers favored ten days or more, and five asked for a cut.

•

A comment by Treasury Secretary Robert B. Anderson brought a ray of hope to gas bill supporters at midweek. Anderson, asked why a gas bill recommendation had been omitted from the President's budget message, said he knew of no reason and, furthermore, that the Administration still favors remedial legislation.

•

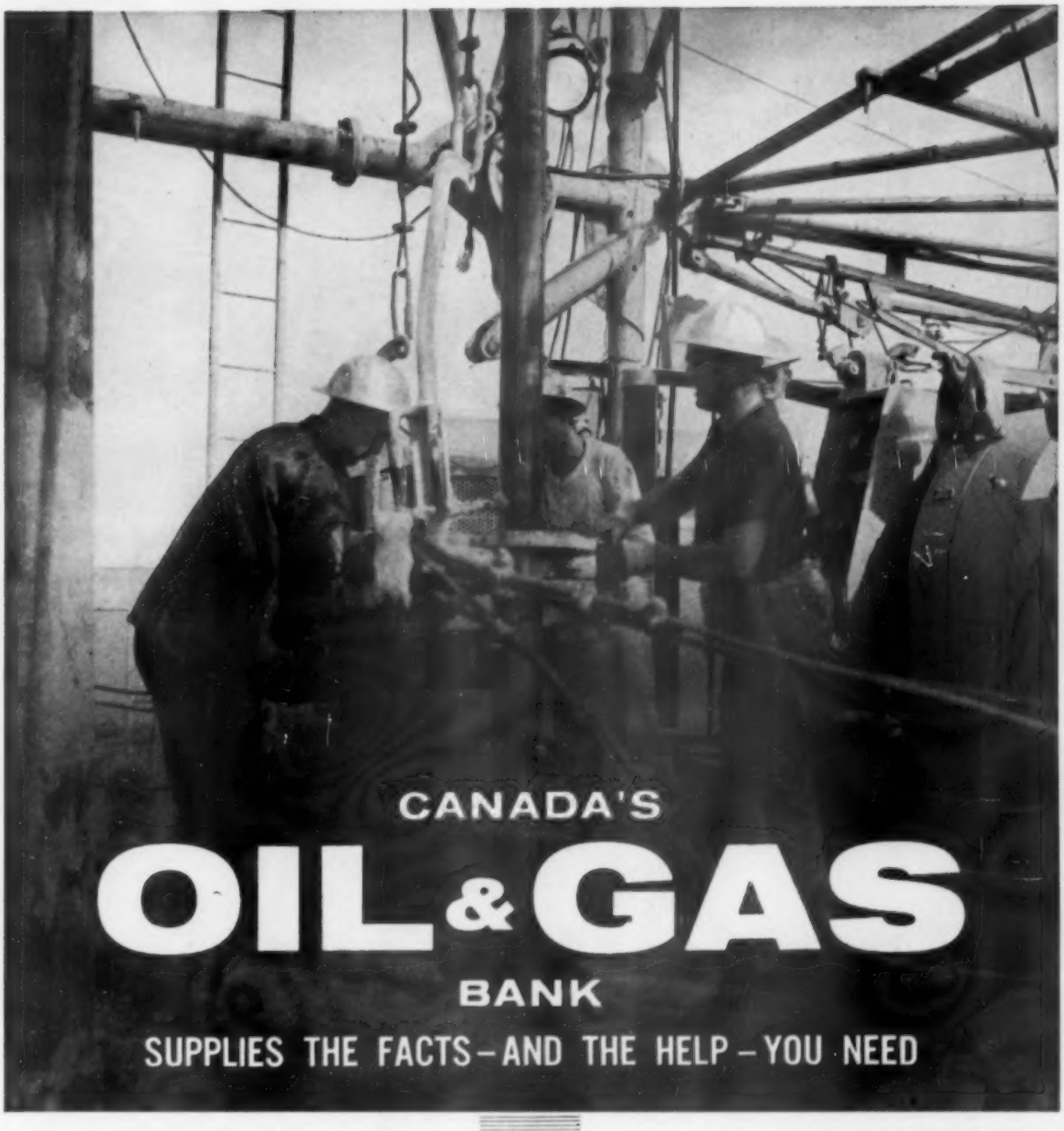
An official investigation into the effect of oil import restriction on the American-flag tanker fleet is under way. The Office of Civil & Defense Mobilization says it will determine "whether the national security requires changes in the import control program." A petition requesting the probe had been filed with OCDM by a group of maritime unions and independent tanker owners. It asked that 50% of the oil imports be required to be carried in American-flag ships.

•

Producer gas prices authorized for a Transcontinental Gas Pipeline Corp. expansion project are going to be reconsidered. The Federal Power Commission granted the rehearing at the request of a group of eastern distributors and the New York Public Service Commission. They are opposed to certifications authorizing producers to sell Texas and Louisiana gas to Transco at prices ranging up to 22¢ per Mcf.

•

Standard Oil Co. (Ohio) this week abandoned its plans to acquire Leonard Refineries, Inc., a Michigan refining and marketing company. Sohio said that it had "no practical choice" in the matter in view of the length of time it would require to obtain a final court decree in an injunction suit brought by the Justice Dept. Company spokesmen said the long delay would be unfair to employees and stockholders of both firms.



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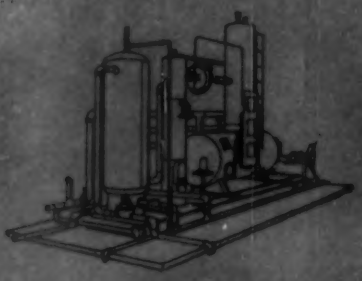

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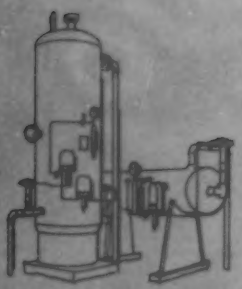
EMULSION TREATERS



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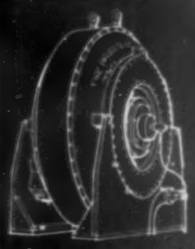
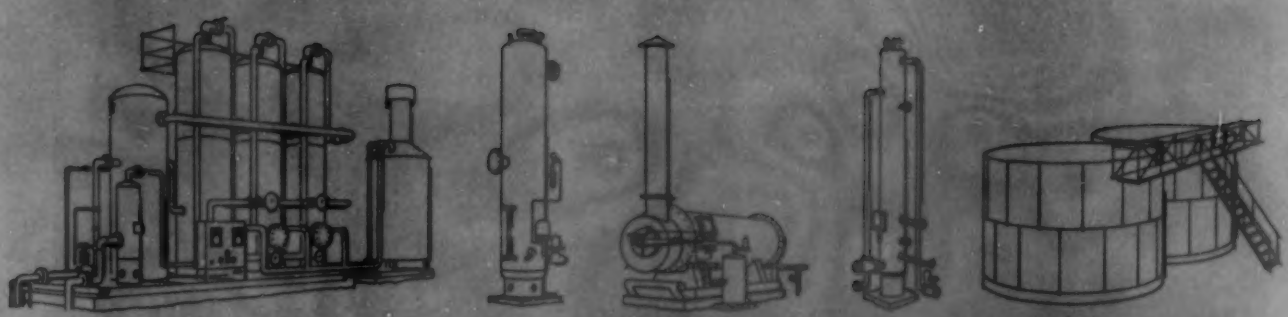


HYDROMATIC BRAKES



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Intrastate Gas Sales Are Booming

HERE'S WHY:

- **Producers are tired of playing cat-and-mouse games with federal controls.**
- **They feel the cards are stacked against them in interstate transactions.**
- **Their intrastate agreements are firm, and much less difficult to negotiate.**
- **Wellhead prices (and profits) are basically as good as in interstate deals.**
- **But most of all, long-term contracts do not necessarily mean "forevermore."**

Intrastate sales of natural gas are pyramiding, amid indications they're the beginnings of an unusual petroleum development—a producers' push for homegrown markets.

It's almost a new concept for some, and credit for the trend goes unquestionably to the frustrating complexities of federal regulation, adverse court decisions, and time-consuming legal challenges surrounding virtually every move.

Interstate transactions are still booming, make no mistake about that. And their growth is going to continue. But for many producers, intrastate sales have acquired a new and more glamorous appeal that's not to be denied.

Specific figures are not available, but there's no doubt that substantial quantities of gas that normally would be dedicated to interstate markets are now being committed to intrastate sales.

An indication of what's going on is the report of one major company which said its intrastate commitments jumped 45% in 1959.

The producers' reason for going intrastate is simple. They are being forced into it by what they consider the stacked-cards conditions hedging interstate sales. And, most important, intrastate prices are firm.

A spokesman for one major company explains it this way:

"You know when you start to run the gas what you're getting for it. You know, too, that you aren't going to get some kind of a retroactive price rollback later.

"You can get a certification for an interstate sale without much trouble. But it's just like a hunting license. You may find yourself ultimately defending the reasonableness of the price under the [Federal Power Commission] 5-A proceeding. And who can say how long that will drag out?"

Says another gas sales official:

"It's kind of like playing for marbles, instead of money. They've taken away our medium of exchange.

"What it boils down to is that an intrastate sale is for hard money—not stage or ersatz stuff."

Tidewater Oil Co., representing a group, began delivering intrastate gas from two fields recently—but the ramifications behind the sales are more significant than the transactions.

The gas went intrastate because producers felt the disadvantages of federal control over interstate shipments were too many and too great.

They wanted to avoid the confusion, the expenses, and the almost total lack of protection plaguing producers generally as a result of the old Phillips' decision.

One of the fields is Louisiana's East Bastian Bay. Originally known as the Cyprian Bay Field, Plaquemines Parish, the reservoir contains in excess of 750-billion cu. ft. of gas. Holding interests in the field are Tidewater, Gulf Oil Corp., Humble Oil & Refining Co., J. S. Abercrombie, Pan American Petroleum Corp., and Phillips Petroleum Co.

The price for this gas, which United Gas Corp. is distributing in the lower Mississippi River area, started at 22.5¢ per Mcf., plus tax, demonstrating that intrastate prices aren't necessarily low.

In July, 1962, the wellhead price goes up to 25¢, excluding tax. Every five years after that, for the duration of the 20-year contract, the price is subject to redetermination.

Based on recent performances, it is doubtful whether FPC could or would permit an initial price that high in an interstate sale. It's possible, too, that it would not concur in the escalation provision.

United's agreement is to take a minimum of 25% of the delivery capability of the wells in the field.

For the record, Tidewater and the others footed the cost of a dry hole in the area in 1956, before hitting the discovery well. And it cost more than $100,000 just to prepare the location for the dry test.

And the discovery well—Tidewater's No. 1-A Abercrombie, which came in in September, 1957—carried a budget of $670,000, exclusive of completion costs.

The second sale, from the Normanna Field, Bee County, Tex., could have direct bearing on a previously negotiated interstate sale between Transcontinental Gas Pipe Line Co., and Consolidated Edison Co.

Houston Natural Gas Corp. began taking the gas at an initial price of 16¢ per Mcf., with escalation provisions set to raise it to 22¢ over a 20-year period.

Houston Natural agreed to take a minimum of 8-million cf/d for two years. If the contract is continued in force, the minimum take would be 1-million cf/d for each 8-million cu. ft. of reserves in place—a favorable provision for the producer.

The gas is produced from the Normanna field, which is involved in the

The decision of one major company to go for intrastate transactions is showing up importantly in its sales column.

During 1958, about 25% of this company's committed gas was for intrastate markets. In 1959, these commitments skyrocketed to 70%.

"We are of the opinion," says one producing company official, "that no agreement for the sale of gas that involves transport across a state line can be considered as a valid contract under FPC regulations."

"transportation" arrangement between Transco and Con Ed, which was turned down by FPC. Transco sought FPC approval to transport gas purchased by Con Ed to New York. The U.S. Third Circuit Court of Appeals in November upset the FPC ruling (PW—Nov.13'59,p22), on the ground that FPC was attempting to control the end use of gas by blocking Con Ed's use of the gas for boiler fuel.

The case is headed to the Supreme Court.

The producers were to receive 19¼¢ per Mcf. over a ten-year period, under that arrangement.

Theoretically, if Transco and Con Ed can obtain a certificate within the two-year period on which Houston holds an option, they could get the Tidewater gas. A Supreme Court refusal to hear an appeal might permit this. But if Houston Natural exercises its option in the meantime, that part of the Normanna gas will never get to the New York area.

Commenting on the situation, a Tidewater official said: "This gas has been shut in for several years because of this federal regulatory angle. How long should the producers be expected to wait?"

Pan American Petroleum Corp.'s reorganization of a subsidiary to develop intrastate gas markets is a good case history of what's happening within producer ranks.

Pan American Gas Co. was revamped last September. Gilbert F. Moore was named president of the subsidiary as well as manager of gas sales, a newly created position, in the corporate setup.

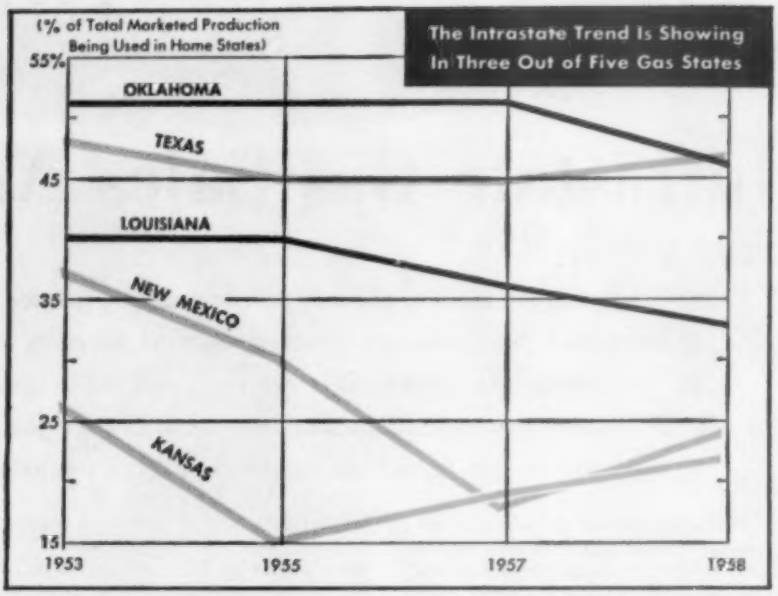
Company headquarters were shifted from Houston to Tulsa, although operational offices remained at Texas City.

The gas company was organized originally in 1941, to supply fuel gas requirements of the Texas City refinery of American Oil Co. In subsequent years, operations were expanded to include other Texas City industrial consumers.

Since its reorganization, it has been broadening its base to include all 15 states where Pan American Petroleum has production.

A producer feels this way about intrastate sales:

"With us, it is purely a business proposition involving the sanctity of contracts—a factor without which we are unable to predict where we stand from one year to the next."



Other examples are Humble Oil & Refining Co. and Continental Oil Co.

Humble, which has been selling gas to industrial consumers since 1937, has contacted many industrial plants along the Texas Gulf Coast in recent weeks.

Company representatives pointed out that Humble's 30-in. line from the Kingsville area will "place Humble in a position to materially expand its industrial gas marketing along the entire Texas Gulf Coast, from Corpus Christi to Orange."

Continental, just this summer, established a new intrastate and gas-products department. It will seek "opportunities for expansion and development of additional intrastate systems," according to senior vice-president E. W. Webb.

Other developments in recent weeks include these:

- Two representatives of a producing company with substantial gas reserves in Louisiana made it known in Baton Rouge that they were interested in intrastate industrial markets.
- In Houston, a representative of a pipeline company which handles a large volume of intrastate sales was talking things over with a manufacturer who indicated interest in locating a factory along the Gulf Coast.
- In Oklahoma, a gas department employee of a major producer said that, by 1972, his company will be consuming about 1-trillion cf/d of its own gas.
- And in California, the final legal touches are being put to an intrastate gas contract.

It's difficult to estimate how much gas now ticketed for intrastate markets would have gone interstate—but there is no question that some sizable packages were withdrawn.

Here are some:

- Bradley Area, near Lindsey, Okla. Production now totals about 125-million cf/d.

Instead of selling to Natural Gas Pipeline Co. of America, the producers committed the gas to Transok Pipeline Co., which supplies it to the electric power plants in the Tulsa area. The producers received 10.5¢ per Mcf. originally, now 14.5¢ per Mcf.

- Grabbs Field, Harper and Kingman Counties, Kan. About 40-million cf/d minimum take.

Kansas Power & Light Co. buys this gas, with casinghead taking priority at 10.5¢ per Mcf., and natural gas commanding 12¢ per Mcf. Escalation will amount to 2¢ in ten years.

- West Seminole Field, Gaines County, Tex., about 10-million to 15-million cf/d.

This gas went to the Pioneer Natural Gas Co., Amarillo, instead of El Paso Natural Gas Co. The price was about the same, 12¢ per Mcf., now 14¢ because of escalation.

These are only a few of many examples that could be cited.

One of the biggest intrastate sales, which more than documents the trend,

involves the Old Ocean Field, Brazoria County, Tex.

Pan Am and Mobil Oil Co., which jointly hold a 90% interest in the field, negotiated the sale with Texas Electric Service Co., of Ft. Worth.

Texas Electric will pay 21.5¢ per Mcf., with 2¢ escalation every four years, to a top of 29.5¢ for the last four years of the contract. Deliveries, a maximum of 250-million cf/d, will begin Jan. 1, 1961.

The electric company will arrange construction of a 300-mi. pipeline, at an estimated cost of $25-million to $35-million.

Not only was it a tough one for the interstate market to lose, but the price was one of the highest—if not the top—along the Texas Gulf Coast.

"The gas was put up for bids, and some 16 or 17 outfits were after it," says a source close to the sale. "One of the requisites, however, was that it must be an intrastate sale.

"Some of the interstate transmission companies tried hard to comply with that restriction by attempting to work out some kind of a non-FPC jurisdiction deal."

Still another clue to the trend is the 65% increase in industrial deliveries that Houston Pipe Line Co. reported recently.

A subsidiary of Houston Natural Gas, Houston Pipe Line operates entirely on an intrastate basis.

The company said it had negotiated several large-volume contracts and transportation agreements for delivery of gas to industrial customers.

It expects to be making average deliveries, under these contracts, of approximately 145-million cf/d.

The long period it takes to finalize an interstate transaction irks most producers.

"You can easily expect a two-year delay, then get a big, fat 'No' at the end of it," explains one man. "And it's all a guessing game, with us as the goats. How in the name of heaven can you honestly say how much of the cost of exploration and development should be allocated to oil—and how much to gas?"

The expense of case preparation and long hearings are drawbacks, too. Few hearings are short, and considerable staff work and travel costs must precede and complement them.

Finally—and this is one of the outstanding disadvantages to a producer—interstate commitments take on a virtually irrevocable aspect.

"In an intrastate deal," says a spokesman for one major, "the purchaser can give the seller a minimum take initially, while the producer is developing and evaluating the reservoir.

"The producer is not committed at this stage. He can stop, and go in another direction. If he has a chance for a big reserve, he hates to tie himself up to an interstate contract.

"Here's why: The price, the take, and all the rest might be fine. But he has tied up his gas for 20 years. And that 20-year stuff doesn't mean anything, either. Can't you just see FPC letting a producer cut off gas to a transmission line when the contract expires? You're just stuck, brother, just stuck."

Coincidentally, FPC reiterated this very philosophy only two weeks ago. It refused to permit Harper Oil Co. to abandon sales to Cities Service Gas Co., even though Harper's contract expired more than a year ago.

FPC reaffirmed the principle upheld by the lower court in the Sunray Mid-Continent case, which is now pending before the U.S. Supreme Court. The FPC stand, in effect, means that contract termination dates are meaningless.

How this energetic drive for intrastate gas sales will turn out is indeterminate at the moment. If the producers push too hard and too fast, it could defeat its own purpose.

There is real danger that the thrust for intrastate markets might become so impelling that it could cause a sag in gas prices. If this went too far, producers might find themselves selling the gas intrastate at practically cost.

"If we start out competing on a price basis only, we are in for trouble," notes a spokesman for a major producer. "Cutting prices won't increase consumption significantly."

But producers are aware of this possibility, and believe that the situation will remain tough but realistically competitve.

"The competition for markets will be rough, sure. But when have we ever ducked competition?" asks one official of a major oil company.

"If this thing won't stand on its own feet, we shouldn't be in it.

"There is a chance that this competition could deflate intrastate prices, but I don't think they'll drop back to those of the old days. As much as they dislike federal control, producers aren't going to cut off their noses to spite their faces.

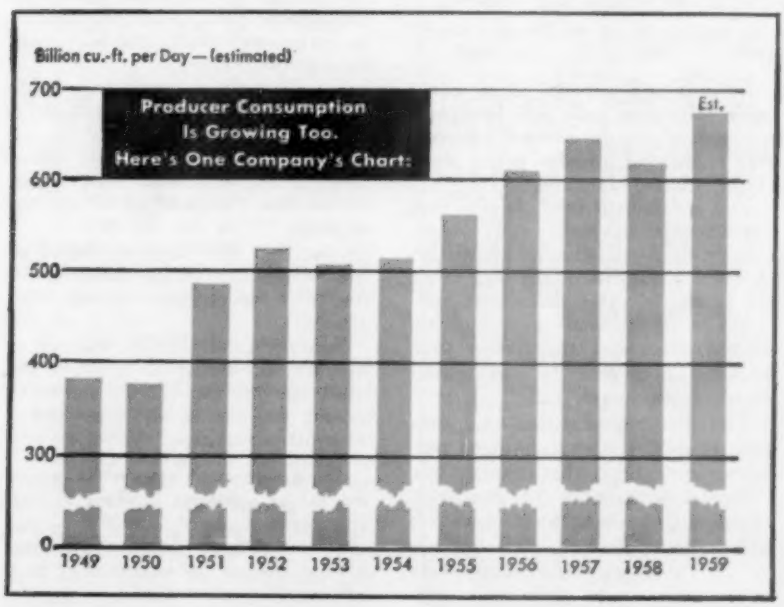
"What could happen, if we are saddled with some kind of cost-of-service formula in interstate sales, is that the high-price gas will move interstate, and the less expensive gas will stay home."

Unquestionably, interstate shipments of gas have risen tremendously in the past few years. But that's only one side of the picture.

The drive for intrastate markets is comparatively new, and for this reason the trend in Texas may be especially significant.

In 1953 interstate shipments accounted for 52% of Texas gas production. They moved to 54% in 1954, to 55% in 1955, and to 56% in 1956. But then the upward climb halted abruptly. Interstate shipments declined to 55% in 1957, and to 53% in 1958.

Conversely, this means that intrastate transactions declined from 48% in 1953 to 44% in 1956, then surged back to 45% in 1957, and to 47% in 1958.



European Prices: Crazy-Quilt Pattern

Prices for crude and products in Europe follow a wide variety of "systems," ranging from government control in some areas to completely free prices in others.

A survey last week by Oilgram Price Service, a McGraw-Hill publication, cites Austria as an example of the loosest system—sometimes fixing a price and sometimes negotiating a level suitable to suppliers and consumers.

In theory, a price-control system is in effect in Austria. But price ceilings can be set aside temporarily as market conditions warrant.

The result is that regular gasoline prices are generally below so-called world levels, and fuel oil prices are higher.

Most countries base consumer prices on foreign refinery quotations. Italy and nations to the east look to the Persian Gulf for most product formulas. Nations to the west look to the U.S. Gulf and the Caribbean.

In Italy, prices are set by the Interministerial Price Committee (CIP), following international markets. Prices stem from Persian Gulf listings, plus ocean freight to Italian refineries. The formula was under strain during the Suez crisis, and a surtax on gasoline of 2.265¢ a liter was applied.

Natural gas prices are also regulated by CIP. They are equated to the caloric and price values of imported heavy fuel oil.

Similarly in France, a special committee calculates prices to consumers on the basis of world refinery prices. The committee, composed of refiners, distributors, and government representatives, starts with FOB prices for products in the Caribbean. Freight rates to France, distributors' margins, and taxes are added. The resulting price is recommended to the government for approval.

There are ceiling prices for all products, which can't be exceeded. As it works out, the motorist usually pays close to ceiling for gasoline. A big industrial consumer of fuel oil often gets a better deal, however.

Taxes have a big weight in clean product prices to consumers—74% for gasoline, 66% for gas oil, and 10% for residual.

In the Netherlands, the Dutch Ministry of Economic Affairs controls oil prices—not only the price level, but also any changes.

Prices are based on quotations in the U.S. Gulf, plus ocean freight from Curacao to Rotterdam, possible import taxes and indirect taxes, and a distribution margin, from which oil companies have to cover expenses.

The Ministry usually allows price changes only after considerable changes in world market prices.

There are only a few countries in Europe where no government price fixing occurs.

Switzerland is a good example. Local prices fluctuate with the amounts of surplus oils offered from surrounding areas, notably Italy and Germany.

Swiss prices are often considerably below so-called "world" prices plus transportation to destination.

Similarly, there is no central control of prices in Great Britain. Companies competing with each other can adopt their own pricing methods.

Pricing formulas, however, are reported to be fairly uniform, which is possibly a hangover from formulas used when pricing was subject to government control. (Government regulation of prices was scrapped over five years ago.) Likewise, in West Germany a competitive market sets the price.

Formulas in many nations are being strained by low-price Russian competition. In Norway, for example, low Russian prices are felt even though most prices are regulated.

The Norwegian price formula is based on the U.S. Gulf for most products. Freight rate allowances are adjusted every three months.

Similarly, trade sources in Sweden say considerable imports of Russian heavy oil are likely to depress any formula prices for some time. Swedish prices are also based by oil companies on world markets. Price changes are regularly filed with a government pricing board, however.

In Finland, which has had no price control since Apr. 1, 1959, an agreement between Russia and the government fixes freight rates for oil shipments from the Black Sea.

Phone Calls Ring in Tulsa Brief

What was said—and what wasn't said—in a series of long-distance phone calls three years ago will be bones of contention in a Tulsa federal court room starting Feb. 1.

That became obvious this week as defense attorneys for 29 oil companies worked feverishly to analyze and rebut a massive pretrial brief filed by the Justice Dept. in the so-called "Tulsa case."

Defense attorneys must put their own answers on record ten days hence —starting date of the trial itself.

Records and reports of oil company telephone calls will form key segments of the government's charge that crude and gasoline prices were "fixed" during January, 1957.

The government brief claimed that "participants in many calls subsequently displayed advance knowledge concerning the intentions and views [on prices] of other defendants."

Evidence, it went on, "includes written admissions that prices were discussed, both generally and in connection with specific calls."

The brief conceded that some calls were made for normal business purposes, but held that these, too, "afforded opportunity for discussion of prices and exchanges of views." It added:

"The evidence shows that these opportunities were deliberately employed to determine the views of competitors. Out of this exchange of views and information grew an understanding that the defendants would act together to increase prices."

The government's voluminous pretrial brief—a six-pound document—contained 159 pages itemizing the basic charges, and a 342-page appendix.

In addition to the claim that crude and gasoline prices were increased by the various defendants, the brief made these contentions:

- That the increases were made despite "ample crude supplies and excessive stocks of gasoline."
- That the defendants hiked their prices to increase their profits rather than "responding to asserted shortages."
- That the "chief executives of some defendants made public statements in which they invited joint action."

Socony Mobil Oil Co. was one of the first companies to react to the brief, denying the charges anew and scoring the case as an "unwarranted antitrust prosecution."

The government, meanwhile, pared the list of witnesses it plans to call. It subpoenaed only 28 of the 72 persons it previously listed (PW—Jan. 8'60,p15)—but it indicated it may call some more later.

Rigs, completions, and footage move up, and . . .

Year	Average Rotary Rigs Operating	New Holes Completed	Footage Drilled	Average Depth Per Hole	Average Total Rigs Operating	Holes Drilled Per Rig (total rigs)	Footage Drilled Per Rig (total rigs)
1950	2,154	43,279	159,288,000	3,680	4,517	9.6	35,369
1951	2,596	44,516	172,331,000	3,871	4,844	9.5	36,490
1952	2,642	45,821	187,190,000	4,085	4,857	9.6	38,785
1953	2,614	49,279	198,839,000	4,035	4,801	10.3	41,478
1954	2,508	53,930	218,986,000	4,061	4,635	11.2	45,587
1955	2,683	56,682	226,270,000	3,992	4,867	11.5	46,955
1956	2,673	58,160	233,902,000	4,022	4,845	12.1	48,583
1957	2,429	53,838	221,900,000	4,122	4,791	11.2	46,100
1958	1,923	49,111	197,384,000	4,019	4,115	11.7	47,601
1959	2,074	52,260	210,223,000	4,023	4,156	11.6	48,284

All data have been revised by AAODC. Total rigs include rotaries and cable tools.

. . . A 2% Increase Is Forecast for 1960

Increased producer income—the result of higher domestic producing rates—"should encourage" greater drilling activity in 1960.

That's the forecast of the American Assn. of Oilwell Drilling Contractors after assessing the results of activity last year.

"A 2% increase in the number of new wells drilled appears reasonable," AAODC predicts. This would mean the drilling of 53,300 holes in 1960, a gain of about 1,000 over 1959.

Such a rate indicates that about 214.8-million ft. of hole will be drilled in 1960, an increase of 4.6-million ft. over 1959.

"A small increase in rig activity would be required to reach the estimates," AAODC reports.

The forecast of an increase in drilling is based primarily on the expectation of a gain in demand of between 3% and 4% this year, bringing a "substantial" gain in required domestic crude output.

Most estimates place U.S. crude output at 7.4-million b/d in 1960.

But the association warns:

The more favorable atmosphere for drilling will be partly offset by prospects of a further rise in operating costs, and the doubtful outlook for a compensating increase in crude prices.

Equipment and labor costs, AAODC says, "undoubtedly" will undergo another increase, further intensifying the squeeze between rising costs and declining prices.

The peg for such a round of increases in the price of equipment may have been provided by the higher wages in the steel industry, the association comments.

The prospect of increased costs "raises a serious question as to how long contractors will be financially able to maintain their rig equipment in good enough condition to keep up the high penetration rates of recent years."

Also, there will be too many rigs competing for the volume of available work, AAODC predicts.

Such competition means that "too many rigs will remain idle too much of the time [and] will lead to a continuation in 1960 of stiff competition for drilling contracts," according to the association.

Contractors last year drilled a greater percentage of the total wells than ever before, accounting for 96% of the completions.

Of the total of 52,260 completions, amounting to 210.2-million ft. of hole, contractors drilled 50,170 holes totaling 201.8-million ft., according to the AAODC tabulation. It amounted to a gain for drilling contractors of 14.3-million ft. of hole over 1958. But it was well below the 217.5-million ft. of hole drilled by contractors in 1956, when total footage reached a record of 233.9-million ft. In that year, contractors drilled 83% of the total.

More footage was drilled in 1959 in proportion to the average rigs operating than in the previous year, but penetration rates showed no real gain.

Preliminary data compiled by AAODC show an average of 48,284 ft. of hole was drilled per active rig (rotary and cable tool) in 1959.

That was a gain of 683 ft. over the average footage drilled per rig in 1958, but 300 ft. under the rate achieved in 1956—the best year for penetration rates.

The number of rigs employed in the U.S. made a small gain last year after three straight declines.

But the average of 4,156 rotary and cable tool rigs (1% over 1958) was far below the average of more than 4,800 for both 1956 and 1955.

The peak number of rigs employed in 1959 came at the end of June, when 4,374 were operating. The lowest level of rig activity was reached at the end of December, when only 3,980 were operating.

Rotaries making hole—exclusive of those engaged in other operations—averaged 2,074 during 1959, a gain of 7.9% over 1958.

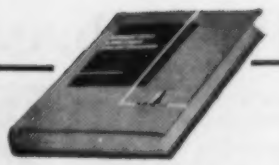
USSR Oil Output Put At 2.6-Million b/d

Premier Khrushchev cited the record of the Soviet oil industry last week to show that the USSR is "successfully solving the task of overtaking and surpassing the U.S. in per capita production."

He reported that USSR crude output climbed to 129.3-million metric tons in 1959, exceeding the target, and a rise of 145% over 1953.

By comparison, he told the Supreme Soviet, U.S. crude production rose only 9% in the same period.

He failed to mention in his "per capita" figures that the Soviet oil production averaged only 2.6-million b/d, compared with 7,045,000 b/d in the U.S. last year.



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What's New / IN THE INDUSTRY

Sunray Mid-Continent Oil Co. expects to build nearly 600 new service stations over the next five years. Sunray presently has 6,000 retail outlets, according to Paul E. Taliaferro, president. He told the New York Society of Security Analysts this week that 558 new service stations and 107 new bulk plants built since Jan. 1, 1955, enabled Sunray to boost the sales volume through company units by 33%. The 10% increase in construction plans he said, will make it possible for the company to "channel an increasing percentage of our refined product sales through controlled outlets." Taliaferro estimated 1959 earnings at 5% to 6% better than 1958.

•

Mobil Oil Co. will be the second firm in the U. S. to import naphtha processed by Japan's Maruzen Oil Co. The companies reached an agreement this week under which Mobil will import 1,500 b/d for a six-month period. Union Oil Co. of California also imports Japanese naphtha.

•

Drilling and completion activity in Texas is starting off 1960 considerably below the 1959 pace. Through mid-January, oil completions, gas wells, and dry holes totaled 839, or 11.7% below the 1959 rate. Drilling applications so far in 1960, totaling 653, are down 10.3%. In all of 1959, 19,386 wells and dry holes were completed, 5.6% below 1958. Drilling applications in 1959 amounted to 20,441, down 1.9%.

•

Nominations for Alberta crude for February averaged 380,413 b/d, down 56,071 b/d from January. Movements to the U. S. will be increased by 5,317 b/d next month, to 73,617 b/d. Puget Sound refiners requested 52,517 b/d, up 3,517 b/d with Shell Oil Co.'s resumption of a small take of Alberta crude for its Anacortes (Wash.) refinery. Crude nominations by Great Lakes refiners rose slightly to 21,100 b/d.

•

The unit allowable in northwestern New Mexico has been set at 63 b/d for February, up 10 b/d over January and the highest yet. The big boost was based on sharply higher purchaser nominations. A unit allocation of 37 b/d was retained for southeastern fields. The total allowable for February will average 367,902 b/d, consisting of 310,235 b/d in the southeast and 57,667 b/d in the northwest.

•

Crown reserve acreage in northern Alberta's Judy Creek area drew a top bid of $2,288 an acre in last week's lease sale. The top price was offered by Imperial Oil Ltd. for 320 acres, one of eight parcels won by Imperial in the area. Its bids for proven acreage at Judy Creek ranged upward from $1,567 an acre. Alberta received $16,827,187 for 185,387 acres in proven and unproven areas on which bids were submitted.

•

A four-way representation election is scheduled for Esso Standard's Bayway (N.J.) refinery on Feb. 25. Hourly rated employees will have a choice among four unions, or no union. The contestants are the Oil, Chemical & Atomic Workers and the Operating Engineers, both AFL-CIO, the International Brotherhood of Teamsters, and the Independent Petroleum Workers Union of Bayway. Bargaining rights are now held by the latter.

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Looking Ahead in Washington

McGraw-Hill
Washington
Bureau
January 22, 1960

It's official now—the Administration wants another increase in the federal motor fuels tax. President Eisenhower, in his budget message this week, asked Congress to boost the federal tax from its present 4¢-per-gal. level to 4½¢. Budget Director Maurice Stans predicts that the increase would pump another $237-million a year into the trust fund used to finance the Interstate Highway System. Industry estimates are somewhat higher —about $300-million.

Congress' initial reaction to the proposed increase is one of strong opposition. But the Administration will press hard for the extra half-cent and, before this session is over, Congress might capitulate.

•

Eisenhower also renewed his request for higher taxes on aviation fuels in his budget message. Administration backers in Congress will introduce legislation calling for an increase from 2¢ to 4½¢ per gal. Under Eisenhower's proposal, jet fuels, now untaxed, would also get the 4½¢ levy.

•

Higher fees for noncompetitive oil and gas leases will again be sought by the Administration. The Interior Dept. will push Congress to make 50¢ per acre the across-the-board rental fee on federal lands. The increase would bring an additional $14-million a year into the federal till.

•

The President wants an amended tax law limiting the application of percentage depletion. He seeks to prevent "unintended and excessive depletion deductions," particularly on finished clay and cement products. But the Administration won't work for the bill until the U. S. Supreme Court rules on a pending case. The issue is whether companies can claim depletion on finished products, such as bricks. Last week the Supreme Court clarified the confusion that had existed in the oil industry on claiming depletion on other than raw materials (PW—Jan.15'60,p14). The high court upheld an appeals court ruling that prevented a natural gas processor from claiming depletion on gas liquids processed.

•

Chances for a natural gas bill remain dim, with not a mention in the budget message. This omission disappointed some producer leaders, who had hoped the Administration would ask Congress to enact legislation freeing gas producers from utility controls.

•

Federal Power Commission Chairman Jerome Kuykendall opposes strict use of the rate-base method in fixing gas production rates. In apparent answer to Commissioner William Connole in the recent Union Oil Co. of California gas rate case, Kuykendall said: "I wish to make it clear that I do not, at this time, commit myself to the rate-base method . . . nor do I believe the commission should deliberately confine itself to such a restricted path if the law does not require it." Connole, a one-man minority on the issue, argues that it is almost impossible to dispose of any rate case without agreement on the methods of costing and pricing.

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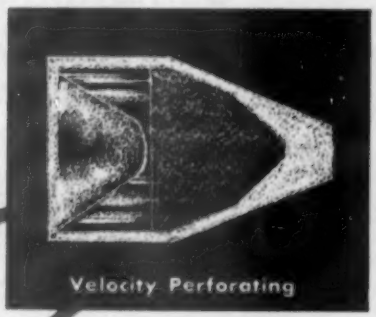

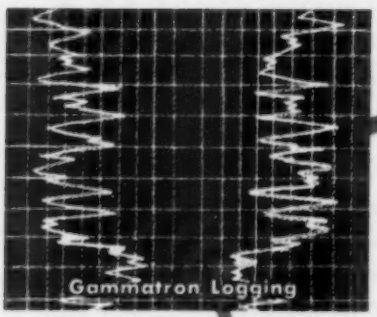

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BAKER HAMMER-LOK STOP RINGS retain scratchers and centralizers positively at the point of installation. You can avoid harmful welding on high-strength casing (such as N-80) and still maintain ample holding force with the new, easy-to-install Hammer-LOK Stop Rings which are quickly installed while the casing is on the rack, or while hanging in the rig. By merely flattening the locking wedge with a hammer, the ring grips the casing so securely that it will resist a vertical force of as much as 35,000 pounds, according to laboratory tests. The effective initial placement of centralizers and scratchers is thus maintained.

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Oil, Gas Finds Boost Alaska Exploration

This era of great expectations in Alaska finds oil men moving closer than ever before, despite many obstacles, to their goal—an oil-producing industry in the 49th state.

On the asset side, the first commercial gas field has been added to the first commercial oil field, which was discovered 2½ years ago. Both are on the Kenai Peninsula.

On the debit side, operational problems remain varied and formidable in the great, rugged expanse of Alaska (586,400 sq. mi.), with its limited population (162,000), and even more limited roads (4,000 mi.).

On the one hand, oil operators face the strong lure of promising, untested sedimentary basins; on the other, the necessity of gambling huge sums to get into the picture.

Government surveys indicate that nearly one-third of Alaska's land area, or about 125-million acres, have oil and gas possibilities.

The cost of drilling, however, is double that of comparable holes in California, says Standard Oil Co. of California, which has more than two years of experience in Alaska.

"When you're talking about a half-million dollars, maybe a lot more," says one engineer, "you can understand how we feel when we get a dry hole."

Six rigs are active in Alaska, with four assigned to rank wildcats at Katalla-Yakataga, Nulato, Soldotna, and Iniskin Bay.

Transportation costs are a big item.

Approximate cost of moving equipment by water from California to Alaska, for example, is 2¢ to 10¢ per lb.

Cost approximations for transportation within Alaska are: by highway, 8¢ to 12¢ per ton-mile; over river ice, 25¢ to 50¢ per ton-mile; over snow, 25¢ to $1 per ton-mile; by air, not including cost for airstrip and strip maintenance, 50¢ to 60¢ per ton-mile; and by barge, on rivers open about four months of the year, 18¢ to 25¢ per ton-mile.

The state's first commercial oil field—the Swanson River Unit field—remains a question mark 2½ years after discovery. Every test is still pretty much a wildcat for Standard Oil Co. of California.

Stancal acts as operator for the 71,600-acre unit, sharing 89½% interest with Richfield Oil Corp. (L.A.). Remaining interest in the unit is held equally by Union Oil Co. of California and Ohio Oil Co.

The boxscore shows five completions, one abandonment, and two holes drilling. One of the completed wells was a dry hole the first time down, then was whipstocked to production. One of the holes now being whipstocked was also dry the first time down.

Swanson River Unit field occupies a narrow north-south strip extending 2¼ mi. south from the discovery. The five wells found production in non-marine sands at about 11,500 ft., now known as the Hemlock zone, and believed to be of Eocene age.

The fourth well completed—No. 12-27—also had an encouraging gas test at 7,600 ft.

Present production is approximately 650 b/d, about all the operator can handle under the present system.

The crude is trucked to Seward for storage there, and ultimate shipment to Richmond, Calif. The wells are believed capable of maximum efficient rate of about 1,750 b/d altogether. Initial production ranged from 100 b/d to 1,300 b/d. Crude ranges from 28.5- to 31-gravity.

Approximate cost for a Swanson River Unit well is $500,000.

This theoretical cost, which depends, of course, on numerous variable factors, can be broken down as follows:

Total surface cost, including production equipment, road, and location, $100,000; electricity, fuel, and water, $20,000; tubular goods, $110,000; services, including cementing, logging, and testing, $55,000; drilling bits, $35,000; drilling fluids, $55,000; contractor, $125,000.

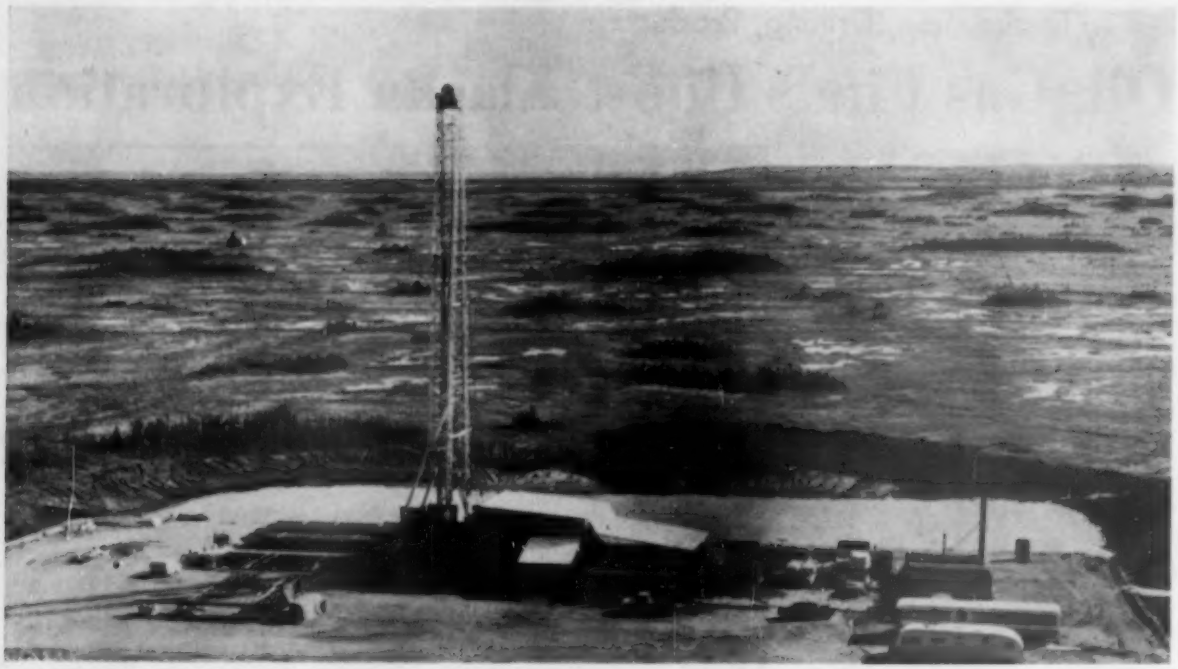
Experience has proved it is cheaper to prefabricate production equipment before it's shipped to Alaska.

Stancal has two rigs presently active in the unit.

Coastal Drilling Co., contractor on No. 32-22 Swanson River Unit, section 22-8n-9w, was redrilling below 4,790 ft. in sidetrack hole last week after bottoming at 11,773 ft. in the original hole.

No. 14-27, section 27-8n-9w, was halted last week at 3,000 ft. while the contractor, Mountain States Drilling Co., made rig repairs.

No. 32-22 is ¾ mi. southeast of



UNION-OHIO No. 14-6 Kenai, deepest well drilled so far in Alaska (15,047 ft.), opened Kenai gas field on the Kenai Peninsula.

one producer in the field, and about the same distance northwest of another. No. 14-27 is only 20 surface ft. from the most southerly well in the field, but it will bottom about ½ mi. to the south.

Drilling has been stopped, for the moment, in the three-well Kenai gas field, the first commercial gas field in Alaska.

Resumption of drilling hinges on the need for additional gas production.

Last October's discovery on the 55,000-acre unit, in which Union Oil and Ohio Oil share interest, with Union as operator, flowed at a rate of 31-million cf/d of gas through ⅞-in. choke on production test at 4,455-590 ft. This test, No. 14-6 Kenai, located 6 mi. south of the town of Kenai, was carried to 15,047 ft., to set a new deep drilling record for Alaska.

The second well, No. 34-31 Kenai, 1 mi. north of the discovery, flowed at a rate of 17-million cf/d of gas through ¾-in. choke and perforations at 4,720-894 ft.

The third well, No. 33-30 Kenai, 2¼ mi. north of the discovery, flowed at a rate of 15-million cf/d of gas through ¾-in. choke. It was completed from a plugged depth of 4,290 ft.

Union Oil reports that the three wells fulfill gas-delivery commitments to Anchorage Gas Corp., which recently obtained a franchise to distribute natural gas in Anchorage and adjacent areas. Further drilling will depend on Anchorage Gas's ability to use additional gas, or to develop additional markets. The wells are shut in at present, pending construction of a pipeline to Anchorage.

Both the oil field and gas field have spawned pipeline plans.

Stancal is working on tentative plans for the construction of a $4-million pipeline and tanker-terminal project to move oil to tidewater.

As presently conceived, it would include an 8-in. line, extending 22 mi. from the Swanson River Unit to Nikiski on the Cook Inlet. Terminal facilities would include a wharf for loading tankers, and storage capacity for 240,000 bbl. of oil.

It's estimated that development wells in Swanson River Unit field will have to reach an assured production level of at least 3,000 b/d for five years or more to make the project economically feasible.

Plans are also under way for a line to carry natural gas from Kenai field to Anchorage.

Route of the line is still uncertain. If by land, it would cover approximately 165 mi. It is believed more likely that the line will cross Turnagain Arm inlet, cutting line mileage substantially.

It's believed that the gas will move through a pair of 12-in. lines across Turnagain Arm inlet. The lines will be reinforced with concrete against tidal surge, and placed 200 ft. apart to guard against total disruption by a shifting anchor.

It's hoped that construction can begin in spring or early summer. Extreme temperatures are not expected to be a problem because a dehumidifying system should control any tendency to freeze.

Cost of the gas line has been estimated at from $12-million to $15-million, plus $3-million to $4-million for the distribution system.

The problems of Alaskan exploration are typified by Richfield Oil Corp.'s wildcat in the Katalla-Yakataga area of southeast Alaska.

After five months of preparatory

Now There Are Just 31 Producing States

Washington no longer has oil production, reducing the number of producing states to 31.

The state's lone well, Sunshine Mining Co. No. 1 Medina, has been shut in after production dropped to about 3 b/d. The 4,130-ft. well was completed in August, 1957, near Ocean City, Grays Harbor County.

The initial rate of flow of 200 b/d through ¼-in. choke touched off a scramble for leases.

Total output was 8,882 bbl.

engine power
BY CATERPILLAR

LIBYAN DESERT PENETRATED BY WORLD'S LARGEST TRAILER-MOUNTED RIG

Few locations subject engines to conditions as brutal as those faced by eight Cat Diesel Engines that power Camdrill International's rig, "Desert Star No. 2." The rig will operate in the Libyan desert where temperatures range from 32° to 130° and sand and dust storms are frequent. The trailer-mounted rig will move twelve to fourteen hundred miles over roadless desert in search of oil.

Engines have oversize radiators, dual air cleaners and dual fuel filters to combat the extreme desert conditions. Special filters give these engines tolerance for fuels from crude oil to higher grade diesel fuels, whatever is available at distant drilling sites.

What kind of engines must a rig like this have? In a word: "Dependable." Another way to say dependable is to say "Caterpillar." Eight Cat Engines furnish all the power this rig needs. Two Cat D397s drive the drawworks through a two-engine, three-shaft in-line compound. An Emsco D300 slush pump gets power from another D397. A propeller shaft drive from the drawworks compound plus a fourth D397 provide power for an Ideco 600 slush pump.

Two D339 Electric Sets, on a utility trailer, power auxiliary equipment and lighting. Power for the base drilling camp site comes from two D342 Electric Sets.

The characteristics of Cat Engines which so well suit them to extreme conditions, such as these, make them your choice where circumstances are less grueling. Portability. Dependability. Extreme fuel tolerance. Freedom from complicated maintenance. Factory parts and service *everywhere* in the free world. Each is a good reason to choose Cat Engines and Electric Sets.

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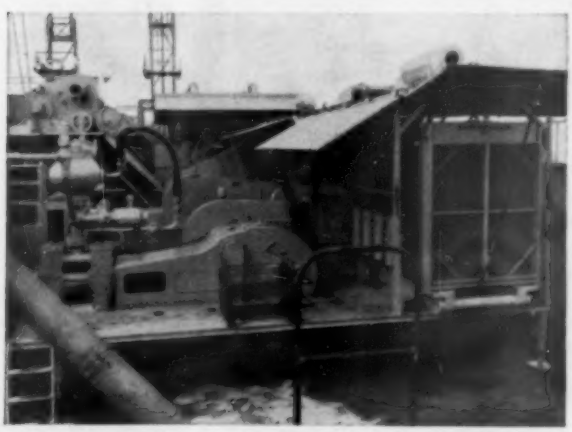

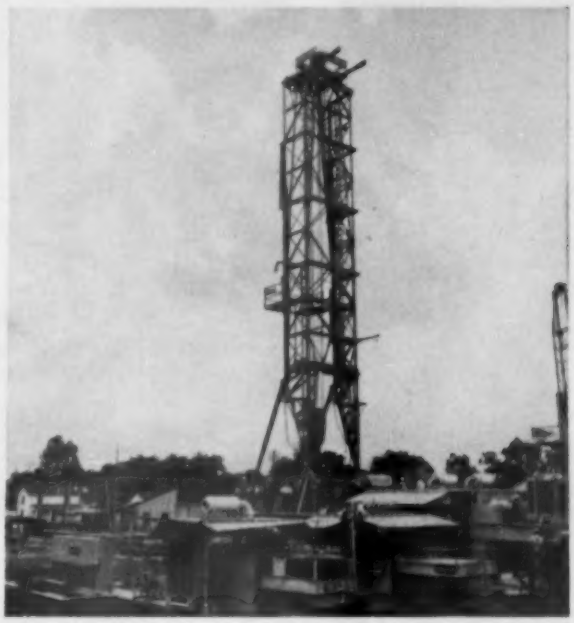

WORLD'S LARGEST TRAILER-MOUNTED DRILLING RIG is this Camdrill, Inc., rig of basic Ideco Desert Rambler design. The giant rig can drill to 10,000-foot depths, is mounted on five semitrailers on 21:00 x 25-inch sand tires and will travel twelve to fourteen hundred miles over Libyan desert. Eight Cat Engines furnish all power.

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Engine Division, Caterpillar Tractor Co., Peoria, Ill., U.S.A.

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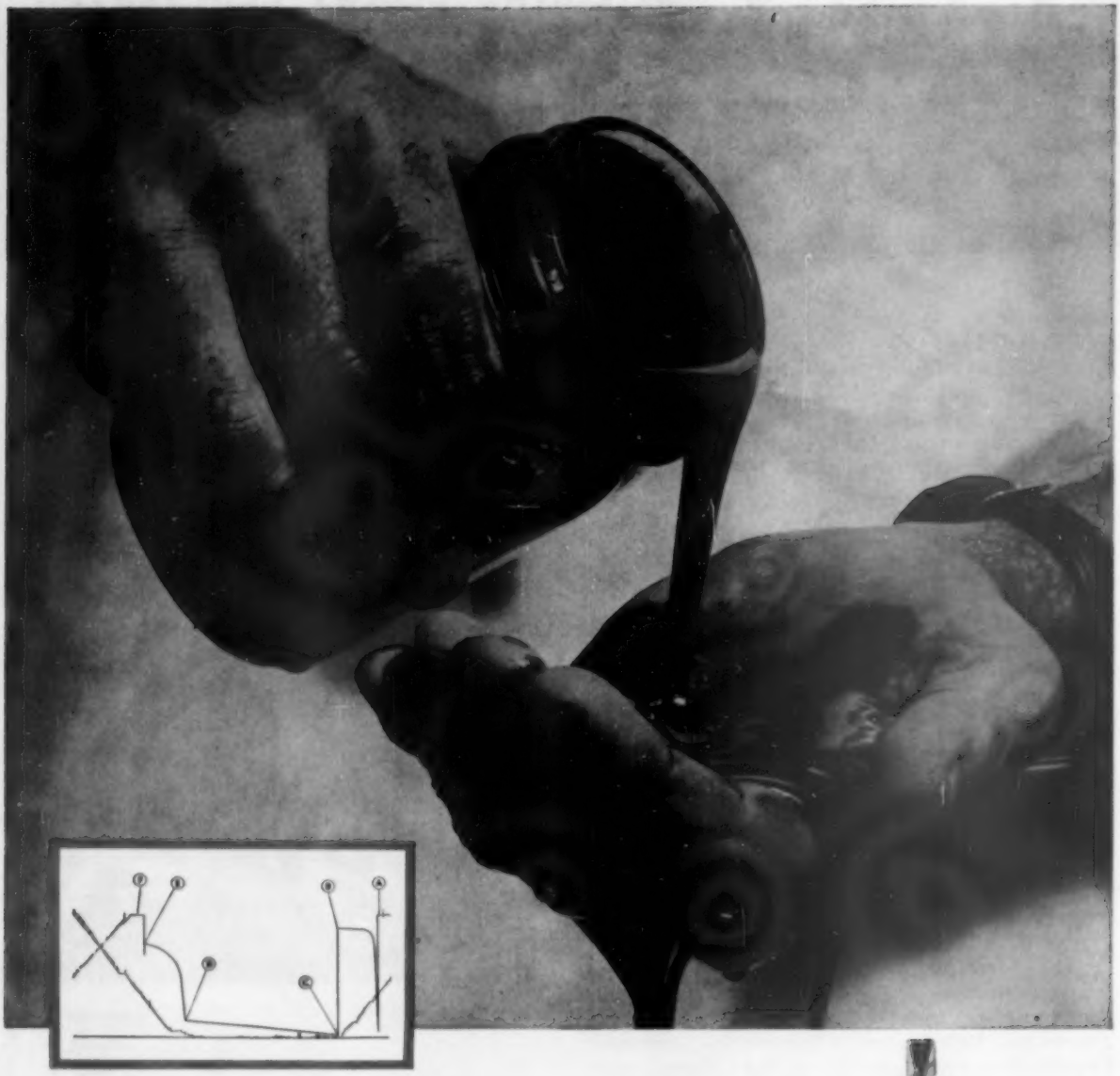

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effort, and expenditures of about $1.5-million, Richfield on Dec. 3, 1959, spudded No. 1 Kaliakh, section 34-20s-14e, as its initial test in the Katalla-Yakataga area.

The company has not officially announced a target depth, but it is generally believed that Richfield is shooting for 13,000-14,000 ft. At last report, the well was being drilled below 7,562 ft.

The drill site is on a 489,622-acre block along the Gulf of Alaska, east of Copper River and west of Icy Bay. Preparations began last summer with the assembly of a new $1-million National 110 rig in the Bakersfield (Calif.) yard of Clyde Hall Drilling Co., contractor for the test. The rig is rated for depths to 20,000 ft. with 4½-in. drillpipe.

Two LSMs and an LST were used to carry the rig and other equipment to Yakatat Bay, from where the LSMs hauled the equipment 100 mi. to the Icy Bay Federal Aviation Agency station, where the equipment was unloaded on the beach there.

From the beach, Richfield built a 23-mi. road to the drill site. Building of the road required bridges across two major rivers, in an area where annual precipitation amounts to about 120 in. Rains, which started two weeks earlier than usual, delayed the project about 2½ months.

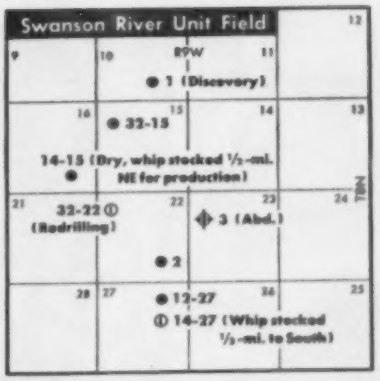
A complement of 30 to 35 men is now stationed at the camp to carry on drilling operations. More than 50 men were in the area during the unloading and moving in of equipment.

In the Nulato area, Paul G. Benedum, operator, is drilling the first interior test in Alaska.

Benedum's No. 1 Nulato Unit, section 7-10s-2e, was drilling below 1,650 ft. at last report, toward a projected 10,000-12,000-ft. probe of the Kateel-Koyukuk Basin. The wildcat is on a 99,840-acre unit, 350 mi. northwest of Swanson River Unit field. Location is on the Yukon River, 100 mi. inland from the Bering Sea.

Mountain States Drilling Co., contractor, spudded the test on Nov. 28, 1959, with a rig that was moved in from previous service for the Navy at Point Barrow.

The operating committee, headed by Benedum, includes William V. Byrd, Renward Oil; Robert O. Garrett, Texas Gas Exploration; Michel T. Halbouty; Ralph A. Johnston, Texas National Petroleum; Vernon Taylor, Jr., Peerless Oil & Gas; and William E. Wallis, Pan-Alaska Corp. In addition to the companies and individuals on the operating committee, ten other companies and individuals are participating in the venture.



FIVE WELLS have been completed in Alaska's first commercial oil field.

Stancal, as operator, has begun drilling the first test on the Soldotna Creek Unit on the Kenai Peninsula, held with Richfield Oil Corp.

Stancal's No. 41-4 Soldotna Creek Unit, section 4-7n-9w, was spudded on Dec. 31. It is programmed to about 12,000 ft. The 70,728-acre unit adjoins the southern boundary of Swanson River Unit. Operator was drilling below 3,000 ft. last week.

In the Iniskin Bay area, Alaska Consolidated Oil Co., Iniskin Unit Operators, Inc., is fishing at a wildcat that—it is hoped—will answer the question whether earlier tests in the area failed because of mechanical problems, or simply because the shows they encountered were noncommercial.

The company's No. 1 Antonio Zappa, section 18-5s-23w, is held up at 11,200 ft. while operator is fishing. Top of the fish is at about 11,170 ft. Coastal Drilling Co. spudded the wildcat on Dec. 25, 1958.

The venture is on a unitized block of approximately 58,000 acres. Two wildcats were previously drilled in the area by Iniskin Bay Assn., a group headed by the late Russell E. Havenstrite, of Los Angeles. One test went to 8,700 ft.; the other, drilled in 1954-56, went to 9,747 ft.

The new operator has water-fraced the second hole, where testing continues.

At least three other operators are committed to drill, and several others are regarded as good candidates for drilling operations.

Halbouty Alaska Oil Co. plans to drill No. 1 Bishop Creek Unit, section 11-7n-1w, as a 10,000-ft. test. Location is 12 mi. southwest of production at Swanson River, and 9 mi. west of Halbouty's first Alaskan wildcat, which was abandoned in May, 1959, at 12,037 ft.

Pan American Petroleum Co. holds a development contract covering about 465,280 acres in the Napatuk Creek area, near Bethel, and has done stratigraphic drilling in the area with a small rig.

The development contract with the federal government calls for minimum expenditures totaling $950,000 on exploratory work and the drilling of three exploratory wells, the first to be started by Mar. 1, 1961.

Bristol Bay Oil Co., Sunray Mid-Continent Oil Co., and Empire State Oil Co., which hold acreage in this area, are expected to join with Pan American in an operating agreement for development work.

Union-Ohio hold a development contract covering approximately 229,000 acres in the Knik Arm area, northwest of Anchorage. The contract calls for the two firms to spend $450,000 and to drill three exploratory holes, one each in 1960, '61, and '62. The area is off Cook Inlet.

In the far north, Colorado Oil & Gas Corp. has drilling equipment on its leases in the Gubik gas area. It is believed waiting on the award of leases, to be opened Feb. 24, for 9,000 acres in the buffer zone between its holdings and Naval Petroleum Reserve No. 4.

Phillips Petroleum Co. is believed to have early drilling plans for leases in the Wide Bay area. The company reportedly has its eye on the Rowan Drilling Co. rig used for Humble Oil & Refining Co.'s unsuccessful wildcat on the Bear Creek Unit, and more recently, for two dry holes drilled by General Petroleum Corp., in the Bristol Bay area.

Mobil Oil Co., successor to General Petroleum, says its future plans are indefinite for 455,573 acres in the Becharof-Egegik, or Bristol Bay, area. The two dry holes drilled last year went to 11,080 ft. and 8,865 ft. Lease terms call for drilling a test in the third year of the contract and another test during the fourth year. The five-year contract was approved last March.

In the Susitna Flats area north of Anchorage, Anchorage Gas & Oil Development Co. No. 4 Rosetta, section 21-18n-3w, is idle at 1,624 ft., but it's likely that drilling will be resumed after the winter.

Alaska's first sale of offshore leases last month set the stage for additional exploratory work.

Companies paid bonuses totaling $4,021,031 for a total of 87,981 acres in 32 tracts in the Cook Inlet and Wide Bay areas.

A joint offer of $1,001,123 by Union-Ohio for a 2,026-acre tract south of the Kenai River was the high bid.

AMMONIUM NITRATE fertilizer is poured down seismic shot hole as a substitute for normal dynamite charge used in shooting.

DYNAMITE PRIMER to set off the ammonium nitrate is then put into the hole and followed by another dose of the fertilizer.

RESULT is just as effective as when dynamite is used, but the cost of the fertilizer is about half that of dynamite.

Use of Fertilizer Cuts Seismic Costs

Little round bits of chemical fertilizer (prilled ammonium nitrate), coated with fuel oil, are helping Union Oil Co. of California make big cuts in expenditures for exploration explosives.

Ammonium nitrate, which was developed by a chemical branch of the oil industry as an agricultural product, has always been known to pack a powerful explosive wallop.

Then, in the mid-1950s, a handler of explosives in the coal industry hit on the idea of using the fertilizer to break the overburden overlying coal deposits.

After several crude experiments, it was found that a light coat of fuel oil on prilled ammonium nitrate definitely improved its explosive qualities.

It has now gained popularity as an effective and cheaper substitute for dynamite in seismic programs.

Union says that use of the fertilizer roughly cuts in half the normal cost of explosives for seismic work.

During one month this past year, says Union, its Midland (Tex.) geophysical crew No. 2 spent less than $5,000 for 45,500 lb. of ammonium nitrate, primer dynamite, and caps.

An equivalent supply of fourth-grade dynamite and caps, the company says, would have cost nearly $11,000.

This amounts to a sizable saving, says Union, especially in West Texas, where peculiar rock conditions call for heavy powder charges per shot to get usable seismic data.

The company says that a typical crew in West Texas will use around 50,000 lb. of explosives per month.

What's more, Union adds, the seismic data obtained by using the ammonium nitrate is just as good as that derived from conventional explosive charges.

The company has run into some problems, however, in using the fertilizer in holes where water is present.

As a result, the holes must be dry,

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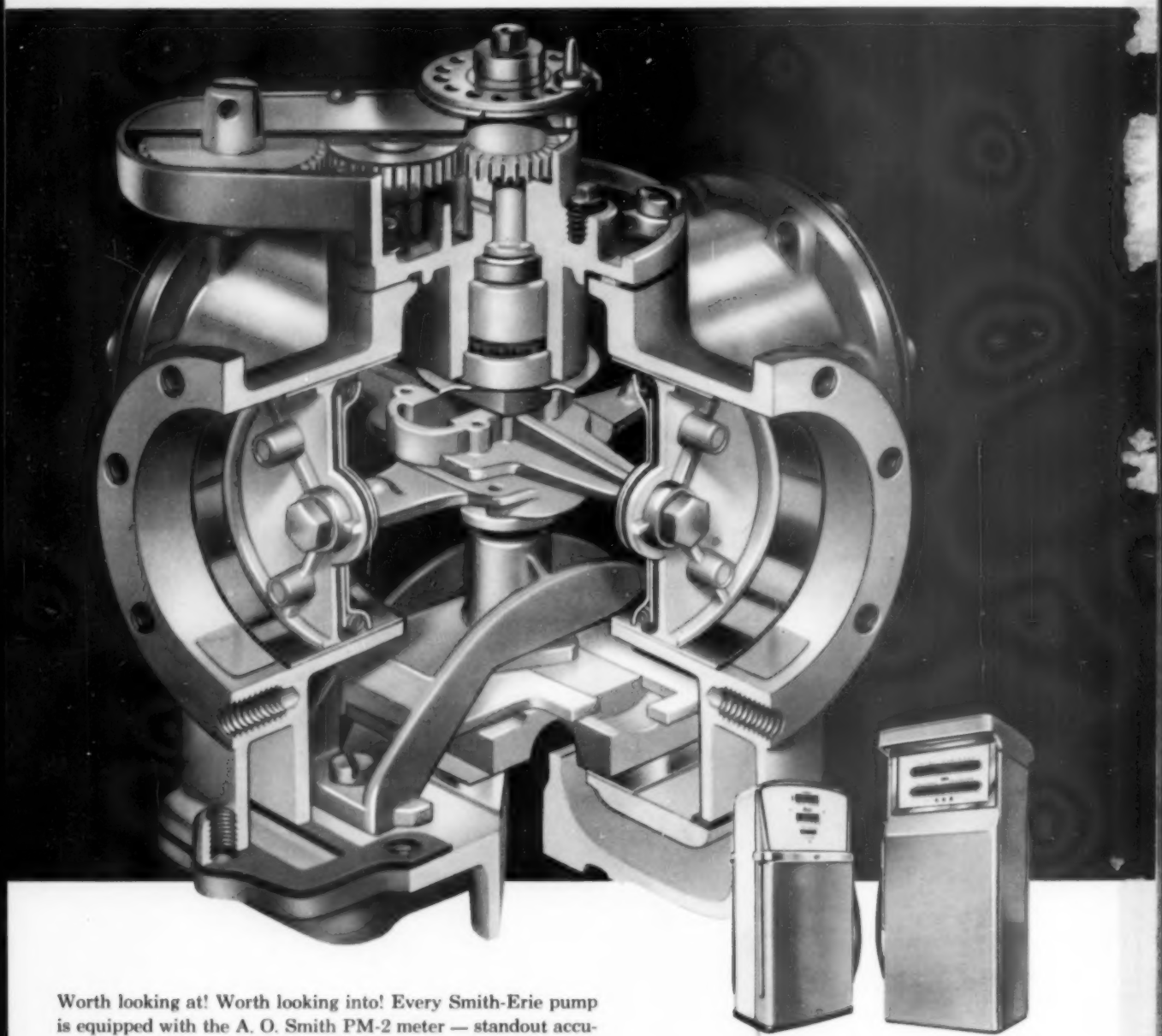

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and thus they are drilled with air as the circulating medium.

This problem is not expected to be a lasting one. Although the needs and the purpose aren't the same, the coal industry, for example, often uses plastic bags to protect the fertilizer from water when it is in the hole.

This method is reported as giving excellent results.

If water is prevalent enough to make the bag of explosives float, coal men add granulated ammonium nitrate to the prills to increase the density of the bag so that it will sink to the bottom.

The savings payoff is in more than just dollars. More work can be done without increasing the cost.

Union says:

"The savings made possible by the use of prilled ammonium nitrate has enabled companies operating in the Val Verde and Delaware Basins [for example] to do more seismic exploration under reduced budgets.

"This will hasten the day that these basins become major producing provinces."

In using ammonium nitrate for seismic shots, a small charge of dynamite is used as a primer.

Here's an example of Union's technique:

Fifty pounds of fuel-oil treated ammonium nitrate are poured in the shot hole. A 10-lb. stick of dynamite, primed with an electric blasting cap, is put on top of the nitrate.

Then, another 50 lb. of the fertilizer is poured down the hole.

The final step is to fill the hole to the surface with rock cuttings from the drilling operation.

Coal workers use a 150- or 175-grain detonating fuse instead of dynamite.

The first experiments to test prilled ammonium nitrate on a seismic program were made in 1958 in Wyoming, Union reports.

The encouraging results from these tests, which were made by General Geophysical Co., led other companies to try the technique in other areas.

It was apparent, Union says, that the Delaware and Val Verde Basins offered an optimum location for use of the fertilizer, and most of the companies operating in the area tried it out.

Because the prilled ammonium nitrate and fuel oil had to be mixed by the seismic crews, reports Union, it did not come into general use until a plant to mix and prepackage it began operation at Big Lake, Tex.

Since then, another plant has opened near Ft. Stockton, Tex., in the Delaware Basin.

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Oklahoma's Kingfisher . . .

County Gets Ten New Fields in a Year

A series of discoveries in Kingfisher County has touched off an active development and exploratory push in the central Oklahoma county.

There are now 19 fields in the county, 10 of which were discovered in the past year.

The leasing efforts of several companies working in the area, plus current wildcat successes, presage additional work.

The spread and nature of the production is conducive to development on 80-acre spacing—a recent innovation permitted for Oklahoma wells that produce from below 5,500 ft.

King-Stevenson Oil and Calvert Drilling No. 1 Grimes, section 32-19n-6w, is the latest oil field discovery in the fast-developing play.

Although production was found in two zones, the Manning section of the Mississippian was the most significant find. It yielded an oil flow of 17 bbl. per hour through 18/64-in. choke and perforations at 6,778-824 ft.

The other productive zone is the Red Fork (Pennsylvanian) sand, from which gas flowed at the rate of 1-million cf/d through perforations at 6,626-42 ft. This zone is expected to be shut in, however.

A diminishing oil flow also was found at 7,020-90 ft. in the Meramec section of the Mississippian.

This discovery closely follows completion of Slats Honeymon Drilling Co. No. 1 Brown, section 11-19n-7w.

This hole had previously been drilled to 8,225 ft. and abandoned. Honeymon went back in, cleaned it out to 7,300 ft., and set casing to permit testing through perforations at 7,016-26 ft. in the Mississippi lime.

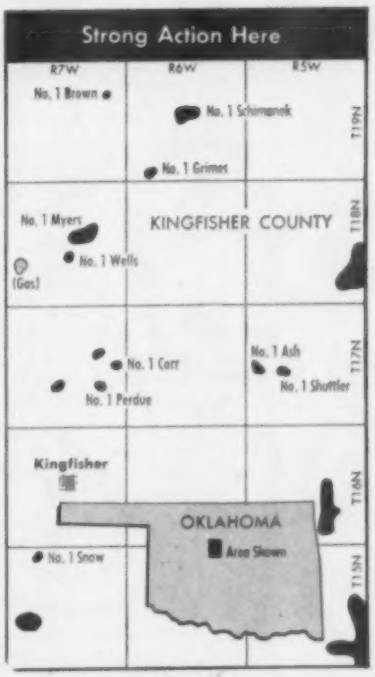
After acid treatment, 108 bbl. of oil flowed in 14 hours through 14/64-in. choke.

These last two completions, coupled with three other field discoveries, indicate a triangular trend 8½ mi. long and 5 mi. wide at the widest point. All of these wells produce from the Mississippian.

• Jones & Pellow Oil opened North Dover field by completing No. 1 Myers, section 15-18n-7w.

Some 200 bbl. of oil flowed in 12 hours through 18/64-in. choke and perforations at 7,019-29 ft. in the Manning.

Drilling activity in this area picked up speed when the same operator moved ½ mi. east and completed No. 1 Bradbury, section 14-18n-7w, for 144 b/d through 12/64-in. choke and perforations at 7,021-31 ft. in the Manning.



In this same area, the Carter Division of Humble Oil & Refining Co. recently completed its No. 1 Bradbury, section 14-18n-7w, for 702 b/d through 20/64-in. choke and perforations at 6,983-7,035 ft. in the Manning.

Other participants in North Dover include King-Stevenson and Sunray Mid-Continent.

So far, no dry holes have been drilled in North Dover field.

• King-Stevenson is credited with discovering Middle Dover field with its No. 1 Wells, section 27-18n-7w, which, after fracturing, flowed 210 bbl. of oil in 5 hours through ¼-in. choke and perforations at 7,050-60 ft. in the Manning.

Sunray later completed a ½-mi. northeast offset to link the field with North Dover.

• Jones & Pellow moved 9 mi. northeast and brought in the first well in East Hennesey field with No. 1 Schimanek, which flowed 100 bbl. of oil in 18 hours through 13/64-in. choke and perforations at 6,769-836 ft. in the Mississippi lime.

Following this success, Jones & Pellow dually completed No. 1 Rickey, section 16-19n-6w, ½ mi. south, which flowed 88 bbl. of oil in 9 hours through perforations at 6,613-19 ft. in the Manning, and 58 bbl. of oil in 9 hours from open hole at 6,818-61 ft. in the Mississippi lime.

Work has spread to include four sections, with the limits of the field yet to be defined.

Two new fields were discovered south and southeast of South Dover field. Both produce from the Oswego, a new pay for the area.

Calvert Drilling and King-Stevenson teamed up to open Northeast Dunlap field.

The field discovery was No. 1 Perdue, section 23-17n-7w, which was dually completed for 335 b/d of oil through 20/64-in. choke and perforations at 6,787-815 ft. in the Oswego (Pennsylvanian), and for 36 b/d of condensate, 99 b/d of water, and 1-million cf/d of gas through ¼-in. choke and perforations at 7,973-75 ft. in the Hunton (Devonian).

Moving northeast, Calvert and King-Stevenson discovered Southeast Dover with completion of No. 1 Corr, section 13-17n-7w, for 323 b/d of oil through perforations at 6,649-61 ft. in the Oswego.

The two most easterly fields found in the play—Southeast Lincoln and East Lincoln—also produce from the Oswego.

Texaco Inc., in late 1958, opened up Southeast Lincoln by completing No. 1 Ash, section 19-17n-5w, for 292 b/d of oil and 83 b/d of water through 24/64-in. choke and perforations at 6,292-312 ft. in the Oswego.

East Lincoln field gots its start when Bilinda Petroleum reopened No. 1 Shuttler, section 16-17n-5w, an abandoned 7,400-ft. wildcat.

A 13-hour test yielded 70 bbl. of oil through 18/64-in. choke and perforations at 6,257-82 ft. in the Oswego.

The latest indicated field discovery, three miles north of North Okarche field, in the southern part of the county, is being completed as a gas producer.

Apache Oil Corp. No. 1 Snow, section 5-15n-7w, flowed gas at the rate of 4.2-million cf/d from a pay between 7,807-70 ft. in the Manning during a 30-minute test. The pay zone is thought to be about 24 ft. thick.

Operator at last report was preparing to land casing at total depth of 7,870 ft. and perforate.

What's New / IN EXPLORATION, DRILLING, PRODUCTION

The Assn. of Oilwell Servicing Contractors has authorized its board of directors to draw up a code of ethics aimed at eliminating "kickbacks" and padded charges.

The proposal was made last week at the AOSC meeting in Dallas by J. A. Sutcliffe, of Rowsco, Inc.

Sutcliffe said most companies expect the contractor to make a profit from well servicing, but that "they also expect honesty and integrity."

He said that each member should be required to make his payroll and invoice records available to an authorized AOSC representative, as well as to customers, so that it could be determined whether charges had been padded, or invoices "boilerhoused."

Violations, Sutcliffe recommended, should result in loss of membership, and such dismissal should be published in the association's magazine.

•

Cities Service Oil Co. has asked the Texas Railroad Commission to approve a waterflood program aimed at boosting recovery by 45-million bbl. from the San Andres formation of Welch field, Dawson and Gaines Counties.

The company said that 99.26% of the working interests and 94.66% of the royalty interests have signed a unit agreement for the project.

The proposal covers 10,638 surface acres, about 75% of the field. Cities Service said that in all probability a second unit will be formed to cover the remaining acreage.

Some 208 wells in the project area produce an average of 12 b/d. Original oil in place in the field is estimated at 268-million bbl.

•

The Canadian government has taken first steps toward doubling the pace of geological survey work in the Far North over the next five years.

Alvin Hamilton, Minister of Northern Affairs, told the First International Symposium on Arctic Geology last week in Calgary that there is particular need for more data as to how oil and gas migrate from their places of origin. He noted that the Dominion government has moved to provide the Geological Survey of Canada with sufficient manpower and funds to carry out the expanded effort.

J. C. Sproule, president of the Canadian Institute of Mining & Metallurgy, told the group that "organized collaboration between the mining and oil industries might work wonders" in Arctic development.

Sproule said such collaboration could include cooperative transportation into north country and mutual services. The market provided by the mining industries also would help finance oil and gas exploration.

More than 1,000 scientists from many countries, including the Soviet Union, attended the symposium (PW—Dec.30'59,p16).

•

The Kansas Supreme Court will appoint a commissioner to hear arguments and evidence in the legal battle over allowables in the Kansas portion of Hugoton gas field.

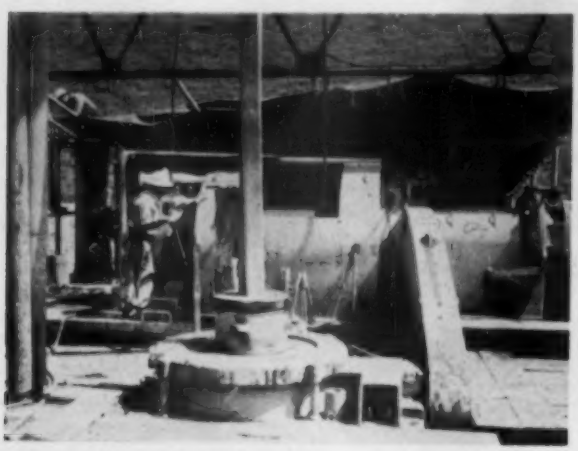
The case goes back about two years when all of the pipeline companies taking gas from the field, except Panhandle Eastern, challenged the Corporation Commission's authority to set allowables higher than nominated.

State District Judge Roland Tate upheld the companies.

The commission appealed the ruling to the supreme court. In the meantime, it got the legislature to pass a new statute to spell out more fully the comission's authority.

The commission argued before Judge Tate, and still argues, that it has the authority to set the allowable at market demand. It currently is operating under the new statute, which could be affected by the decision in the case to be heard by the commissioner.

The point at issue is whether the



IN 1941, this National Type 125 rig was used by Barnsdall Oil Co. in Rancho San Francisco field. First of its type to be manufactured, the drawworks was powered at that time by two 300-hp. Waukesha gas engines. It was the first drawworks to use air-actuated, disc-type friction clutches.

TODAY, the original drawworks is being used by Sun Drilling Co. in the drilling of a deep test in Ventura Avenue field, Kern County, Calif. Present power equipment includes three Waukesha 800-hp. gas engines in a three-section National drive group with hydraulic couplings and dual Dy-A-Flex clutches.

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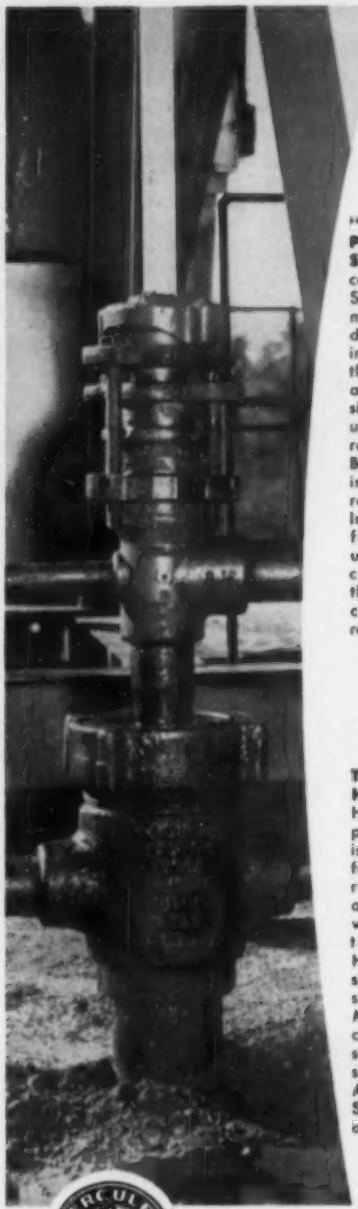
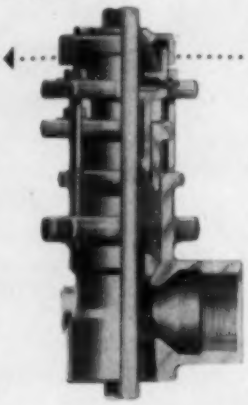
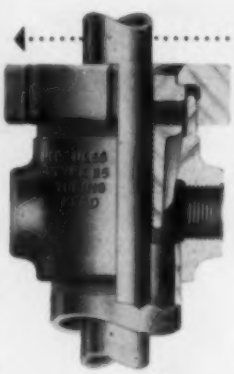


A typical set-up is shown below in Creek County, Oklahoma, using Hercules "Tee Type" Duplex Polished Rod Stuffing Box and Type "ES" Tubing Head. This is an easily assembled, effective and economical producing unit.

"TEE TYPE" DUPLEX POLISHED ROD STUFFING BOX—A combination Tee and Stuffing Box with female thread to screw directly onto the tubing, eliminating one threaded connection and resulting in a considerably shorter hookup. With internal parts removed, the Stuffing Box body is full opening and need not be removed to pull rods. In addition to being furnished in the most used sizes, special combinations of threads and outlets can be furnished on request.



TYPE "ES" TUBING HEAD—This Tubing Head is ideal for any pumping situation. It is economical enough for shallow wells and rugged enough for any depth well, with working pressure up to 1500 pounds. Hercules self-aligning slips suspend the inner string in this Head. Mandrel suspension can be furnished instead of slips, if desired, at no extra cost. A neoprene Tubing Stripper Unit is also available.



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commission had the right under the old statute to set allowables at market demand or, if not, whether it has this right under the new statute.

•

More than 50 drilling commitments have been made within a 30-mi. radius of Albany, Ky., following discovery of what is said to be the state's largest producing well.

L. H. Horn, one owner of the discovery—No. 1 Garner—estimated that it produced 20,400 bbl. of oil in its first 36 hours. The well was put under control after four days, preparatory to installation of a pumping unit.

The well reportedly led to an offer of $25,000 for a 40-acre lease adjoining the 85-acre Garner farm.

•

General American Oil Co. of Texas has purchased the producing properties of Brown Oil & Gas Co., of Monroe, La., for about $46.5-million.

The purchase involves more than 40 producing wells in Valentine field, Lafourche Parish, La.

The sale was made by the widow of the late Joe W. Brown, founder of the company, who died last year.

Other details of the transaction have not been disclosed.

•

Continental Oil Co. has been authorized to conduct a $2-million waterflood in Cat Creek field, Petroleum County, Mont.

A Conoco spokesman says production is expected to increase from the present 150 b/d to as much as 2,000 b/d under waterflooding. Conoco will be unit operator of the flood area, comprising 1,240 acres on the west and main domes of the 40-year-old field.

•

Great Northern Drilling Co. has concluded an agreement with Union Oil Co. of California whereby the former will drill a test 45 mi. west of production in Glacier County, Mont.

The test will be drilled in the area known as the Mountain Front Disturbed Belt. The agreement between the two companies makes three areas available to Great Northern. They total more than 25,000 acres.

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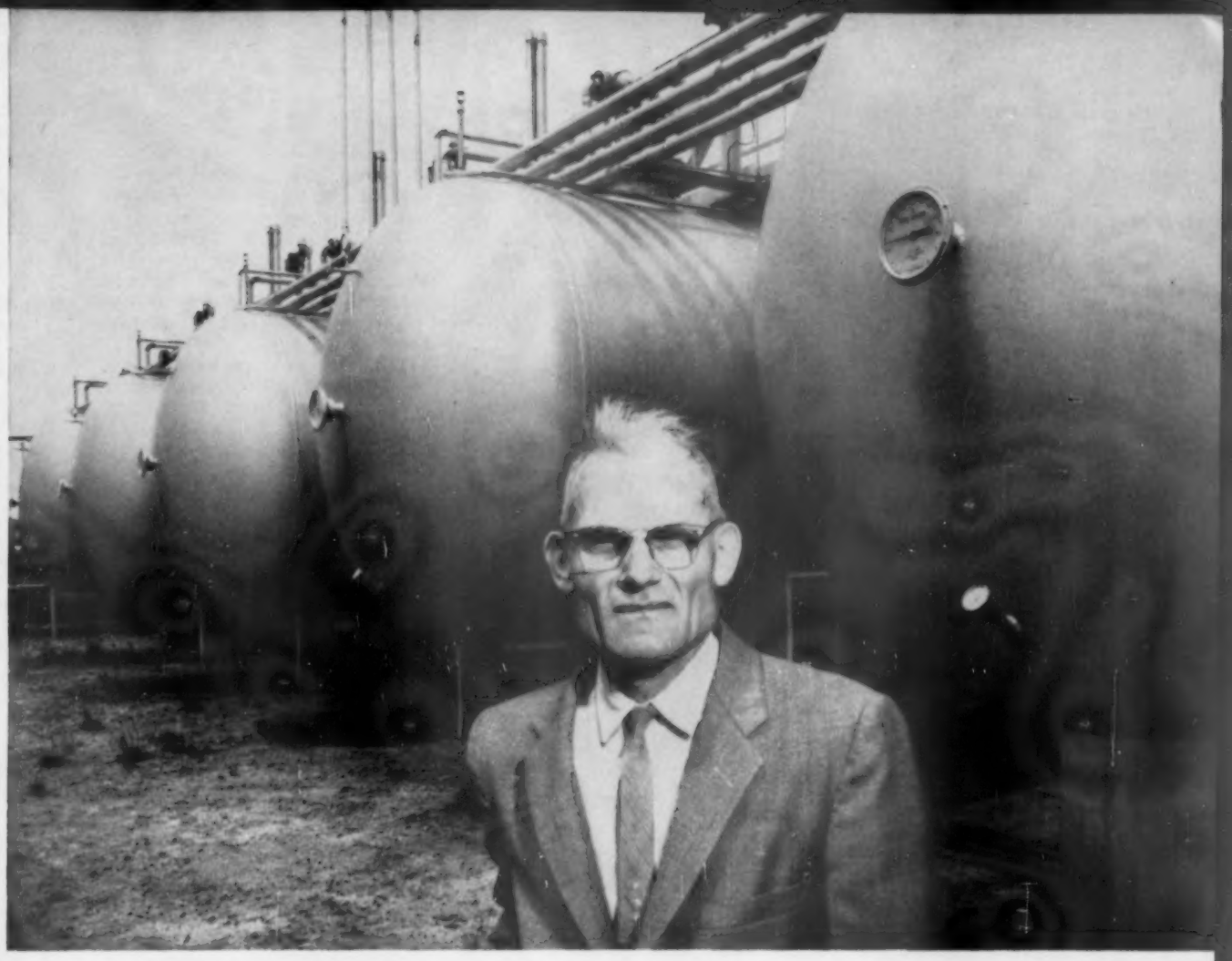
Regents of the University of Oklahoma are going to advertise for bids on oil and gas leases on the univer-



Mr. D. A. Ionata of Providence Gas Company says:

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"Some skeptics said it couldn't be done," says Mr. Ionata. "That is, that we could have the corrosion protection of Bitumastic® No. 50 and still get a heat-reflective top coating to keep our propane tank pressures down."

The Providence utility's Assistant Superintendent of Manufacture was faced with this problem when banded mortar over Bitumastic-coated tanks failed. Determined not to lose the still-sound protection of the Bitumastic No. 50, Mr. Ionata followed Koppers recommendation on recoating the tanks. A coating of Bituplastic® No. 28 over the Bitumastic base and a top coating of Bitugloss® Aluminum Paint was the result.

Although water sprays are installed to cool the tanks, their use has not been required since the Bitugloss coating was applied more than a year ago.

This case is typical of the problem-solving abilities of Bitumastic Coatings. Have you checked into the economies of the Bitumastic Method of corrosion-prevention? It will pay you to: write Koppers Company, Inc., Tar Products Division, Pittsburgh 19, Pa., or use the handy coupon below. District Offices: Boston, Chicago, Los Angeles, New York, Pittsburgh and Woodward (Birmingham), Ala. In Canada: Koppers Products, Ltd., Toronto.

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sity grounds inside the city limits of Norman.

They said that drilling aimed at tapping formations under property within city limits would have to be directional, with the rig located outside the city, since a city ordinance prohibits drilling within the city limits.

Drilling rules established by the regents include the grading of well sites and fencing. They also specify that exhausts should point southward, away from the city, and that only electric motors be used.

Big Three Welding Equipment Co., Houston, has acquired the Ransome division of Worthington Corp.

Ransome, which makes welding positioning equipment with emphasis on automation welding, will be known as the Ransome Co. division of Big Three. Big Three makes and distributes welding and cutting supplies and gases.

Terms of the acquisition were not disclosed.

Ransome plans to open a new manufacturing plant in Houston by mid-year.

Engineering

A hydraulic percussion jar for use in oil well fishing jobs has been developed by Southwest Research Institute for Bowen-Itco, Inc.

The tool, now in its final testing stage, will eliminate the problem of recocking the jar after each use, and will provide for continuous vibration as long as necessary, according to SwRI.

Designers of the tool were aided by an NCR 102-A digital computer, which determined how the different components in such a tool would affect the jar's over-all operation.

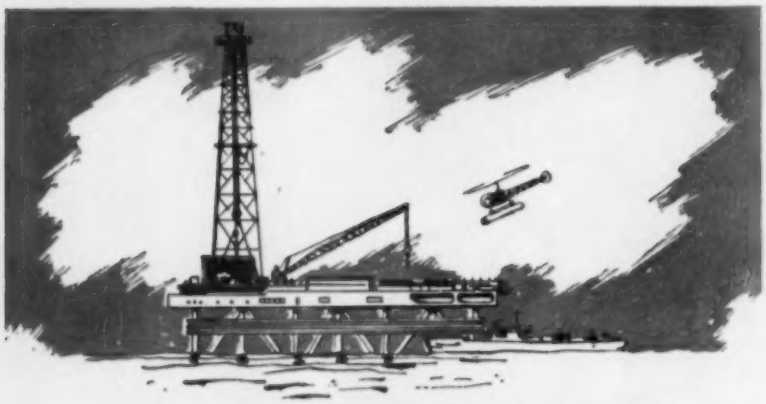
•

Drilling Highlights

Wyoming—True Oil Co. et al No. 1-D Wolff, section 35-49n-71w, Campbell County, reportedly recovered 4,840 ft. of highly gas-cut and slightly mud-cut oil, and 360 ft. of slightly salty water cut with oil, gas, and mud, on 3-hour drillstem test of the Minnelusa (Pennsylvanian) at 9,947-97 ft. The wildcat is 4½ mi. southwest of True's Minnelusa discovery at Timber Creek field, and 12 mi. west of Donkey Creek, which produces from the Cretaceous and Pennsylvanian.

West Texas—Odessa Natural Gasoline Co. No. 1 J. H. Shirk Estate, section 23, block 2, MK&T survey, Upturn County, was completed for 1,719 b/d of 48.5-gravity oil through ½-in. choke and open-hole at 9,897-10,190 ft. in the Ellenburger. The well is the second Ellenburger completion in the multipay Fradean area, a 1959 discovery by Neville G. Penrose, Inc. Odessa Natural requested permission to triple-complete the well through perforations at 8,860-980 ft. in the Fusselman (Silurian), where gas-condensate showed on drillstem test during drilling, and at 8,004-24 ft. in the Strawn (Pennsylvanian), which showed oil on an earlier test. The well also had gas-condensate prospects in the Devonian. The Fusselman and Strawn are new pays for the area.

Oklahoma—Carter Division of Humble Oil & Refining Co. No. 1 Spangler, section 13-17n-19w, Dewey County, flowed gas at an estimated rate of 5-million cf/d during 1-hour drillstem test of the Lower Morrow (Pennsylvanian) at 11,720-65 ft. The prospect is located 4 mi. west of West Valley Center field, which produces gas and oil from the Tonkawa and Oswego.



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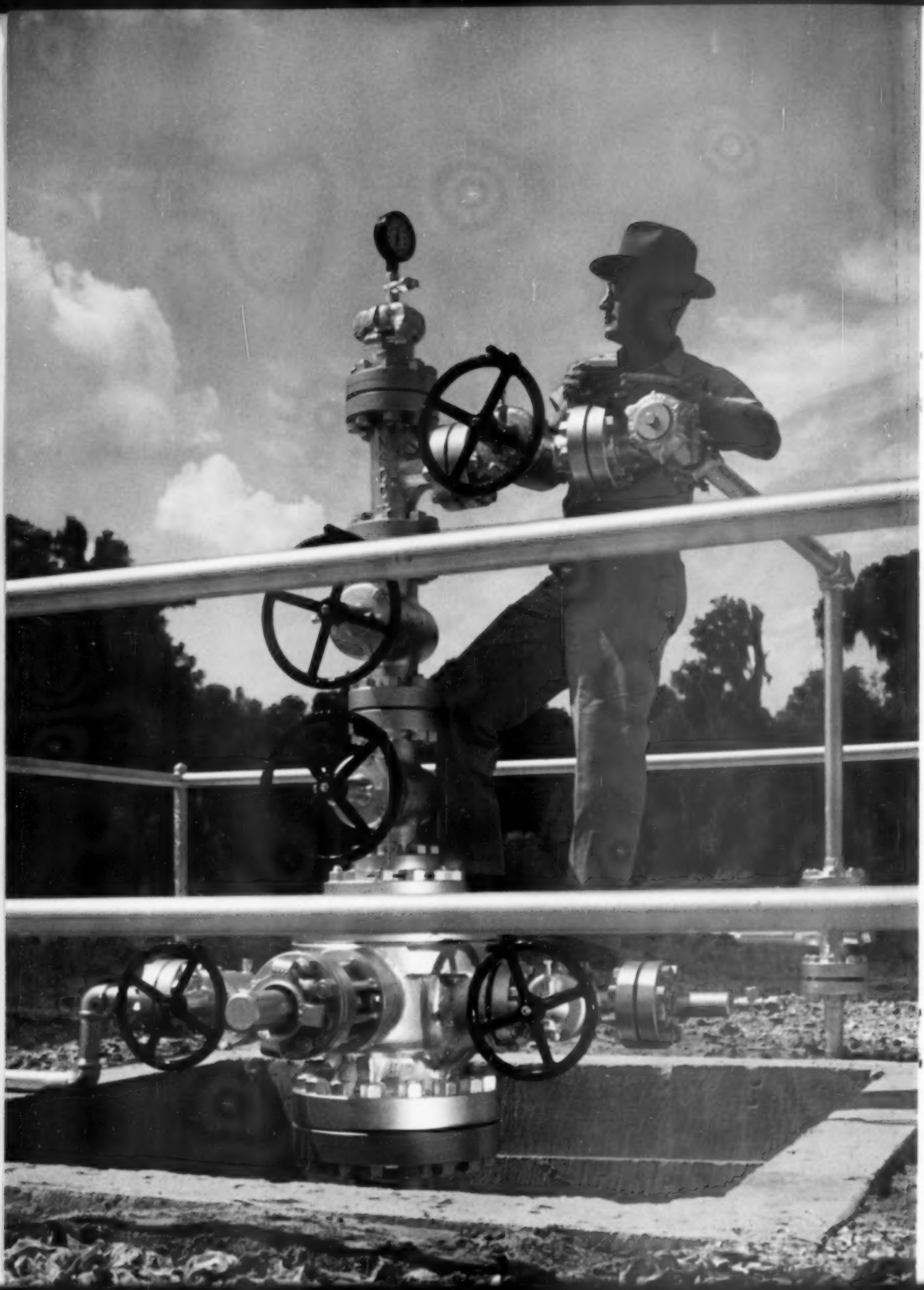

3-way record proves superiority of NATIONAL Type B Wellhead Equipment!

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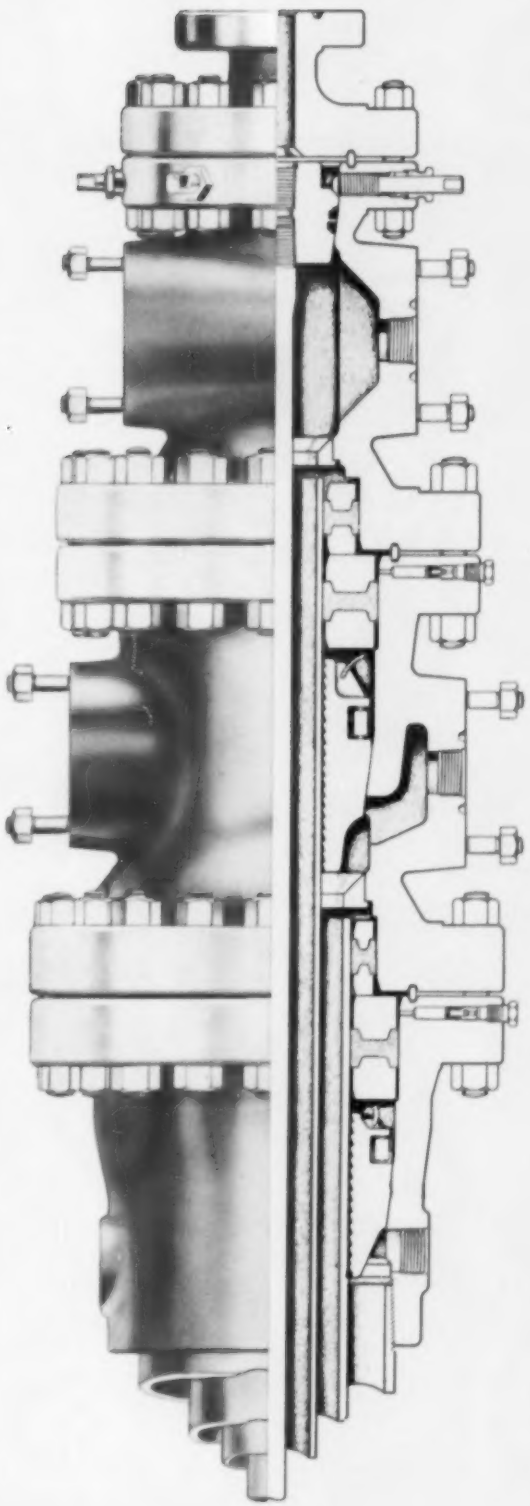
National Type B Wellhead Equipment is manufactured in a complete range of sizes, using field-proved bodies and hangers for any type completion. The wide range of accessory and companion equipment provides the operator with dependable wellhead equipment to meet his needs in any oilfield.

More on the next page



This diagram of Type B Wellhead Equipment illustrates the pressure-packed principle employed to separate pressure loads from slip loads.

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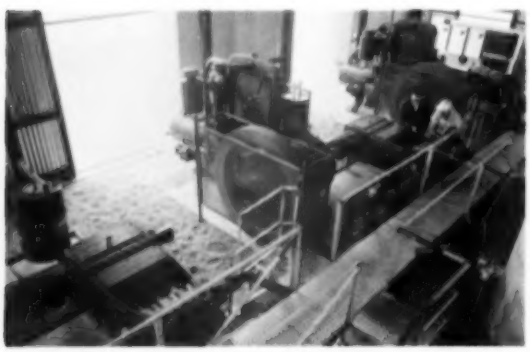

This National J-125 Triplex Pump is the smoothest running pump of its type ever produced. Built for pressures to 6,000 psi and volumes to 11,000 b/d, it has many features designed to assure smooth operation, low maintenance and long service.

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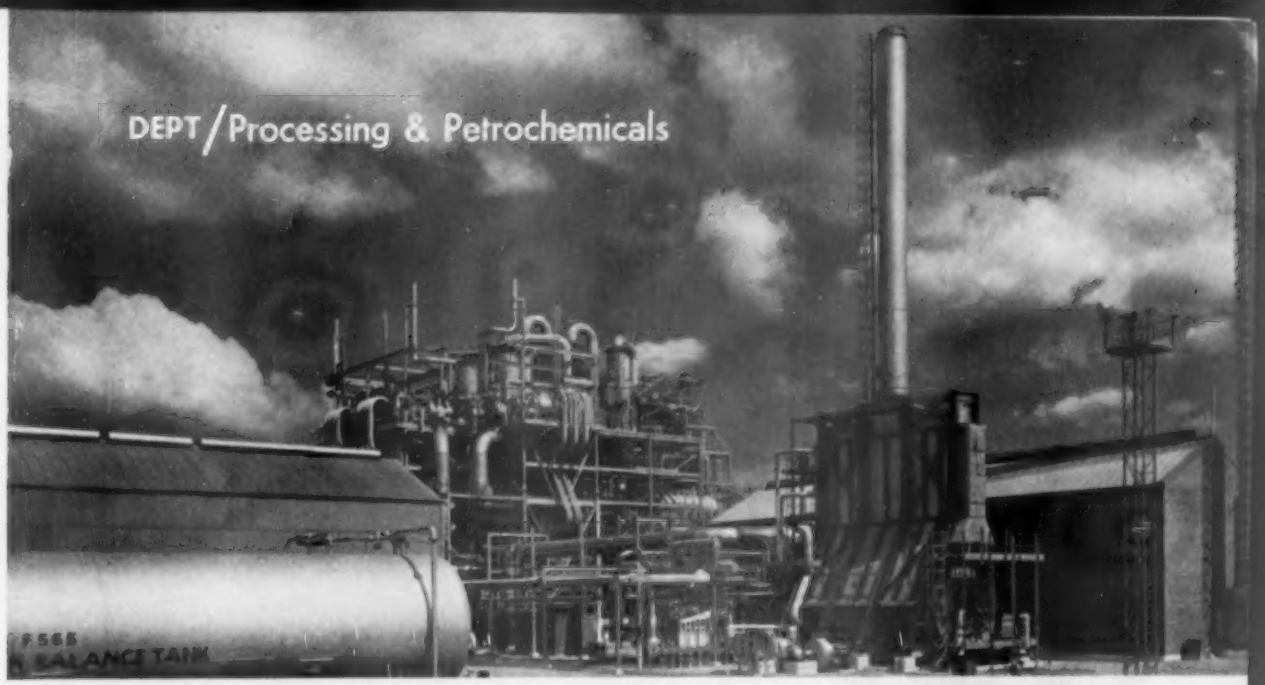
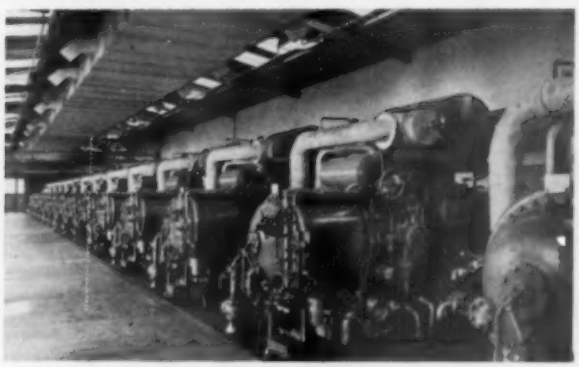


OLEFIN PLANT of Imperial Chemical Industries, Ltd., at Wilton, England, is being expanded for the third time.



FREE-PISTON GENERATORS (left), supplying hot gases to turbine-driven compressor (right), provide . . .

Low-Cost Power at ICI's Olefin Plant

A battery of 15 free-piston gas generators, using low-cost fuel oil, keeps down the over-all cost of power at the new olefin plant of Imperial Chemical Industries, Ltd., recently put on stream at Wilton, England.

These generators produce hot gases for gas turbines to drive the centrifugal compressors that are extensively used in the new plant (pictures).

This is a novel engineering feature, incorporated in the design of the Wilton plant by M. W. Kellogg Co., of New York.

The free-piston engines consist of opposed-piston, two-stroke, diesel cylinders, without crankshaft, bearings, or flywheel.

They are very similar to the free-piston engines developed in the U.S. by General Motors Corp.

Any sort of liquid fuel can be sprayed between the two opposing pistons, and burned with supercharged combustion air. The gases produced by the combustion of the air-fuel mixture force the pistons apart, against a cushion of fresh air admitted on the other side of both pistons. This fresh air causes the pistons to "bounce" back toward each other, and the cycle repeats itself.

Properly located inlet valves and exhaust ports control the sequence of operations.

Specifically, these ports and valves accomplish the following:

- They admit fresh air into the "bouncing" part of the cylinder, where it acts as a cushion, and is compressed.
- They allow the supercharged air to pass into the combustion space between the two pistons.
- They permit a portion of this air to scavenge the combustion space and escape with the burned combustion gases.
- They retain most of the supercharged air in the combustion space for the next cycle.
- They allow the hot gases, mixed with a portion of the air, to pass into the gas collector leading to the gas turbine inlets.

Although the gases reach a temperature of around 840F, the fact that they are mixed with part of the scavenging air reduces that temperature substantially. As a result, no special steel is required in the construction of the gas turbines. But, concurrently, the efficiency of the system is slightly reduced.

This new olefin plant is the third expansion of ICI's Wilton olefin facil-

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ities. It brings the company's total high-purity-ethylene capacity to 110,000 tons per year. But plans are already under consideration to increase the output to 140,000 tons per year. Construction of the new plant was started in 1958.

While ethylene is the principal product at Wilton, propylene is also manufactured. These petrochemicals are used mostly in ICI's plastics division for the manufacture of polyethylene (Alkathene), polypropylene (Propathene), and synthetic rubber (Butakon); in its fiber division, where Terylene is made; and in its dyestuff division, where detergents are manufactured.

The method employed to produce these olefins is the cracking of light naphthas, of which ICI buys 600,000 tons per year for its three units. Gasoline is produced as a byproduct (PW—Jul.3'59,p31).

One novel feature of the Wilton olefin plant is the demethanization process, which produces nearly pure methane. It is accomplished through multistage, low-temperature refrigeration, followed by expansion and evaporation.

Is Nuclear Processing Practical?

The recent announcement from Russia that scientists there had succeeded in applying nuclear radiation to the cracking of petroleum without catalyst (PW—Jan.8'60,p45), has caused renewed interest among U.S. refiners in the use of radiation in refineries.

Application of radiation and other nuclear techniques to refinery processes has been under scrutiny in this country since the end of World War II. A survey conducted in 1957 by Nucleonics, a McGraw-Hill publication, showed that at least 17 major oil companies were engaged in such studies at that time.

Nuclear radiation produces about the same type of action as a catalyst: It reduces the temperature-energy level at which a reaction occurs. It puts energy into a molecule without the need for heating up a whole mass of other molecules in the process.

For example, small quantities of gasoline and other oil products have been produced at lower-than-usual temperatures with the aid of radiation for many years.

Irradiation reactors, to treat hydrocarbons in the liquid or the vapor phase, have been conceived and designed.

The source of radiation can be either Cobalt 60 (gamma rays), nuclear reactors (gamma rays and fast neutrons), or accelerators (beta rays).

Today, despite several years of research in the U.S., no commercial installation has been built for the use of radiation—or for the combination of heat and radiation—in refinery processing.

Refiners are reluctant to divulge much of their work along this line. Most agree, however, that the absence of working-size processing units using radiation as a source of energy derives from two causes, one technical, the other economical.

Technically, it was found that reactions induced by radiation were not selective.

While these reactions were active and reproducible, they were always accompanied by a mass of side, or secondary, reactions, so that the desired product was difficult to isolate.

This is not the case when heat and catalysts are used. The use of the correct catalyst, in particular, makes a chemical reaction very selective. A definite major reaction can be worked out by selecting the correct temperature, pressure, and catalyst.

Even when pure hydrocarbons were subjected to radiation, as was done, for example, by General Electric Co., the absence of selectivity reduced the value of the results obtained.

Economically, working-size units using nuclear radiation would be enormous and impractical. In reasonable capacity sizes, the cost of radiation is prohibitive.

Present methods obtain the same results at a fraction of the cost.

Furthermore, the type of unit has a definite relation to the size economically acceptable, according to Esso Research & Engineering Co. Thus, Cobalt 60 is most likely to be an economical radiation source in small sizes, Esso says; accelerators in the intermediate sizes; and reactors in capacities greater than 1,000 kw. of radiation.

"It often happens," says Dr. Frank T. Barr, of Esso Research, "that improvements resulting from radiation work stimulate research along nonnuclear lines, which lead to similar results, at lower cost."

Research continues actively, however, among refiners. Esso Research,

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for example, which spent about $1-million a year in radiation research work, has terminated the contract it had with Battelle Memorial Institute for the use of its reactor, but is actively carrying on experiments with its own facilities.

One area where the use of nuclear radiation might well become practical is the manufacture of petrochemicals.

Interesting developments can be expected in the near future in the fields of polymerization and crosslinking of polymers, according to several major refiners who are pursuing this work.

Enormous progress is being accomplished in the application of nuclear radiation to chemical research, tracer technique, process control, and to processes where cost is secondary.

"Transaxle Fluid" Nearing Success

Development of a single lubricant that will serve both as an automatic transmission fluid and as a lubricant for the rear-axle differential mechanism of a car appears to be nearing success.

This is the conclusion reached in two reports presented at the annual meeting of the Society of Automotive Engineers, in Detroit last week, by engineers of the Chevrolet Motor Division of General Motors Corp., and of the GM Research Laboratories.

This lubricant will be designated as transaxle fluid, whether it is used in the transaxle—the combination transmission and rear-axle differential of a rear-engine car—or in separate units of a conventional car.

While GM has been working on the development of such a dual-purpose lubricant for several years, the search was spurred recently by the advent of the Corvair, a rear-engined car that features such a "transaxle," said R. E. Harvie, Chevrolet's metallurgical engineer.

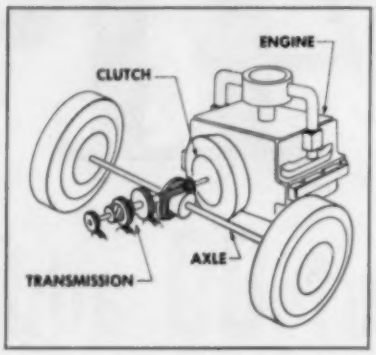
Some success has already been obtained in the development of a satisfactory transaxle fluid. But, the GM engineers warn, much work remains to be done to achieve optimum results.

The heart of the problem lies in the variety of requirements that such a fluid must meet, to play the double role of a hypoid gear lubricant and of an automatic transmission fluid.

Hypoid gears need an extreme pressure (EP) lubricant, containing special additives.

It took the oil industry—working in cooperation with the car manufacturers—many years to develop hypoid-gear lubricants that would be satisfactory for passenger cars and trucks. They had to find a lubricant that combined antiscore strength, wear resistance, rust and corrosion protection, adequate viscosity, heat resistance, and seal compatibility.

"All of these gear lubricant qualities must be considered in the development of transaxle fluid," the GM engineers say, "since the transaxle will employ hypoid gears in a service similar to that in which current rear axles are used. In addition, it must also have the qualities of an automatic transmission fluid, which have been developed during the past 23 years."



INTEGRATED TRANSAXLE of the Convair combines the transmission and the differential in a single unit.

A fluid satisfactory for automatic transmissions should be:

- A mild extreme-pressure gear lube.
- A nonfoaming torque fluid.
- A hydraulic fluid that can operate between −30F and +300F.
- A wet-clutch and transmission-band lubricant.
- A lubricant with high oxidation and catalysis resistance, so as to avoid formation of sludge and varnish.
- A rust-preventive and corrosion-resistant fluid, compatible with all sorts of metals, rubber seals, adhesives, clutch facings, and band liners.

Today's hypoid-gear lubricants and automatic transmission fluids both exhibit performance weaknesses in service. The object of the research is to develop a single lubricant incorporating all the desirable properties of both types.

In evaluating automatic-type transaxle fluids, it was assumed that their requirements would be similar to those for automatic transmission fluids, plus the level of extreme-pressure quality required in a rear-axle lubricant.

Many new techniques had to be set up to test the various fluids considered. Some were road tests during which the fluid was circulated through the rear axle and the transmission.

These road tests—called plumbed-car tests—showed that Dynaflow and Hydra-Matic transmissions will function satisfactorily for more than 15,000 mi. when using a fluid in common with the rear axle. But other, more stringent tests are required. Some of these are:

- A hypoid gear bump test—to determine how the fluid will protect the hypoid gear teeth, and eliminate noise, under severe conditions.
- Automatic transmission clutch-plate inertia cycling tests—to study the viscosity and lubrication stability of the fluids in Powerglide and Hydra-Matic transmissions.
- A Chevrolet fade test—to determine the compatibility of the fluid and the clutch plate.
- A seal-dip cycle test—to find out the effects of the transaxle fluid on various seals.

Some 32 mineral-oil-base fluids and 10 synthetic fluids were evaluated. Only three of each category passed both gear and clutch-plate tests.

Only one of the synthetic fluids tested compared favorably with the mineral-oil-base fluids. Although synthetic fluids cost much more than mineral-oil-base fluids—which cost less than $1 per gal.—it was believed that some of their inherent properties might justify their selection. The tests did not bear this out.

Another approach to the problem was to add a small amount of extreme-pressure additive to existing automatic transmission fluids, and evaluate the quality of the resulting fluid.

This procedure caused complications, however, due to the great complexity of the mixture of the basic transmission fluid, the additives already in it, and the additional EP increment. Only three EP additives seem to warrant further testing.

One important result of the tests has been the discovery that phosphate-coating of the hypoid gears is of great advantage. It reduces substantially the degree of extreme-pressure severity required in the lubricant.

"The time when we could attend to our local affairs without reference to international events is long past. Such upheavals as the revolution in technology, the explosion of population, the awakening of Asia and Africa, will gather pace and power. The question is: are we capable of adapting ourselves to them? Here is the real contest between Communism and our own system. Which will be most responsive to the inexorable demands of the world as it is and as it will be?" —Eugene Holman, Chairman of the Board

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What's New
IN PROCESSING

The domestic price of tetraethyl lead antiknock compounds was sliced 5% last week. The new prices per pound of TEL content announced by Ethyl Corp. and Du Pont: 57.06¢ for motor mix and 63.00¢ for aviation mix.

•

A jet fuel gauge that uses cobalt-60 gamma rays to measure aircraft JP-5 fuel levels has been developed for the Navy by Atomic International division of North American Aviation.

When the rays are passed through jet fuel containers, any drop in radiation intensity is measured by detection equipment. Accurate readings of the quantity of fuel are then shown on the aircraft's instrument panel.

•

Yokkaichi, in central Japan, is fast becoming that country's major petrochemical center.

Production from Nihon (Japan) Synthetic Rubber's $33.3-million plant, set to go on stream next month, is expected to reach 45,000 tons by 1963.

Nihon also plans to manufacture its own butadiene from butane and butylene supplied by Showa Oil and Daikyo Oil. Styrene will come from Mitsubishi Petrochemical.

•

Pure Oil Co. has come up with a new method for detecting foreign material in jet fuel—a "black box."

The box uses the "Tyndall effect," the phenomenon by which microscopic dust particles become visible in a beam of light.

Pure's box excludes all light, except for a powerful flashlight beam which is passed through a small window at one side. A second opening is provided to allow the tester to observe the light at right angles.

When a sample of fuel is agitated in the container, dirt shows up in the beam as shiny particles—particles that are invisible in normal daylight.

•

DX-Sunray Oil Co. this week announced plans to build a $1-million petrochemical unit to produce benzene at its Tulsa (Okla.) refinery. The unit is expected to go on stream next fall.

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Gas Pipelines, Storage Grow Steadily

Transmission-line building and underground-storage development played a key role in last year's record growth in the natural gas industry.

Though more miles of pipeline were built and storage developed in some previous years, both areas recorded significant activity in 1959.

Sparking new-line building and storage expansion were big gains in gas sales (PW—Jan.8'59,p14). Sales by utilities and pipeline companies registered an 11.3% gain over 1958 to reach a record high of $5.1-billion, according to the latest estimates by the American Gas Assn.

At year's end, the gas industry had a total of 32.6-million customers.

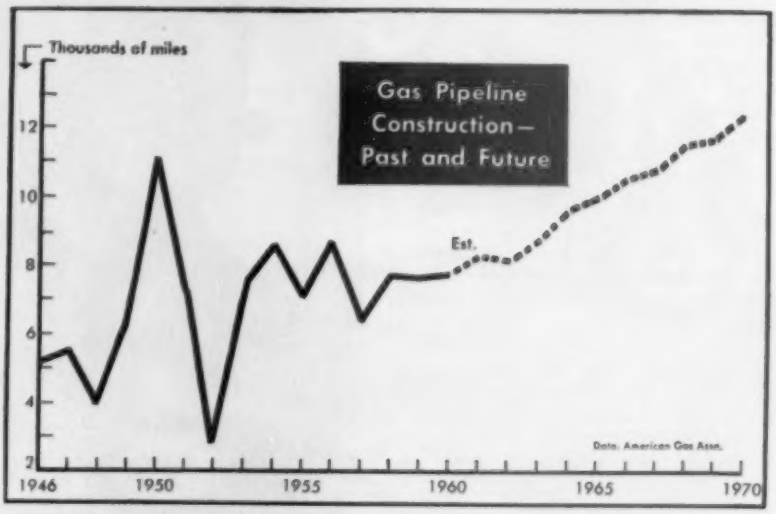
Major gains were recorded in industrial sales, despite the steel strike. The number of industrial companies served in 1959 advanced 2% over 1958, and sales jumped more than 10%.

In 1958, total revenues from gas sales amounted to $4.6-billion, AGA reports.

The industry built 7,700 mi. of transmission lines last year, to bring total mileage to 173,100.

Though mileage constructed in 1959 slipped slightly below that built in 1958, it cost the industry more money. Last year the industry spent $809-million for its 7,700 mi. of line, reports AGA, while in 1958 it spent $715-million for 7,800 mi.

Other years having more construction than 1959 were 1950, 1954, and 1956 (chart). A total of 74,800 mi. of gas transmission lines were built in the past decade.



Pipeline construction is expected to grow at a steady pace this decade.

A total of 109,300 mi. of new pipeline is expected to be built by the end of 1970, at a cost of $15.6-billion.

At that time, total mileage of gas transmission lines should be 282,400, according to AGA. Its prediction is based on current and projected plans of transmission companies.

With the development of an estimated 180-billion cu. ft. of new underground storage facilities last year, total capacity now stands at about 2.9-trillion cu. ft.

The amount of gas actually in storage at the start of 1959—the latest AGA figure in this category—was 1.8-trillion cu. ft.

This gas was in 205 pools in 19 states. Maximum output of these storage facilities was estimated at 9.8-billion cf/d.

In 1944, when underground gas storage was still in its pioneer stage, there were 50 pools in 11 states.

Last year, $115-million was spent for storage expansion—a $42-million increase over 1958.

Total expenditures of $2.2-billion for the development of additional underground storage is forecast through 1970.

In 1970 alone, AGA estimates, $318-million will be spent for this purpose—nearly triple the amount spent last year.

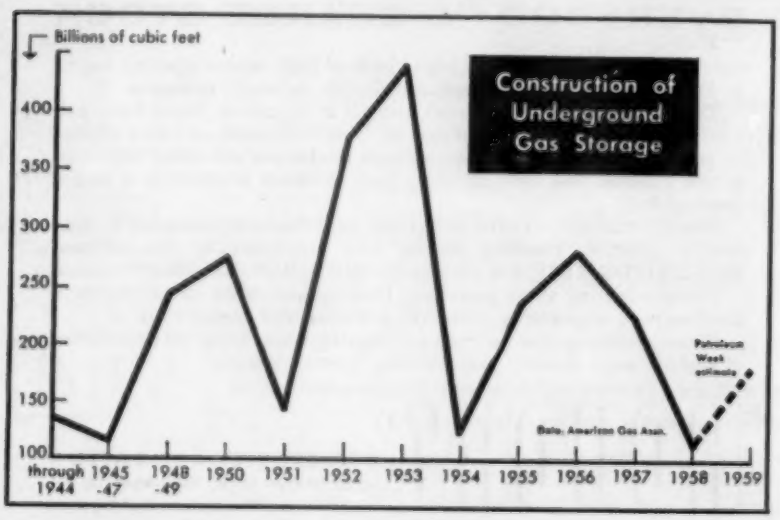
Research to cut costs and improve service—both in transmission and in end use of gas—is credited with helping the industry make inroads in the coal and fuel oil markets.

Among projects sponsored by AGA last year were: Development of a vertical in-line engine-compressor, development of a method for nondestructive inspection of steel pipe, and work on improving techniques of leak detection.

Gas sales—including those of transmission companies—are expected to top the $10-billion mark by the end of the 60s.

This is the prediction of Wister H. Ligon, president of AGA and of Nashville Gas Co.

"The gas industry is moving full-speed ahead," he says, "confident that 1960 will be the forerunner of a decade of tremendous progress."



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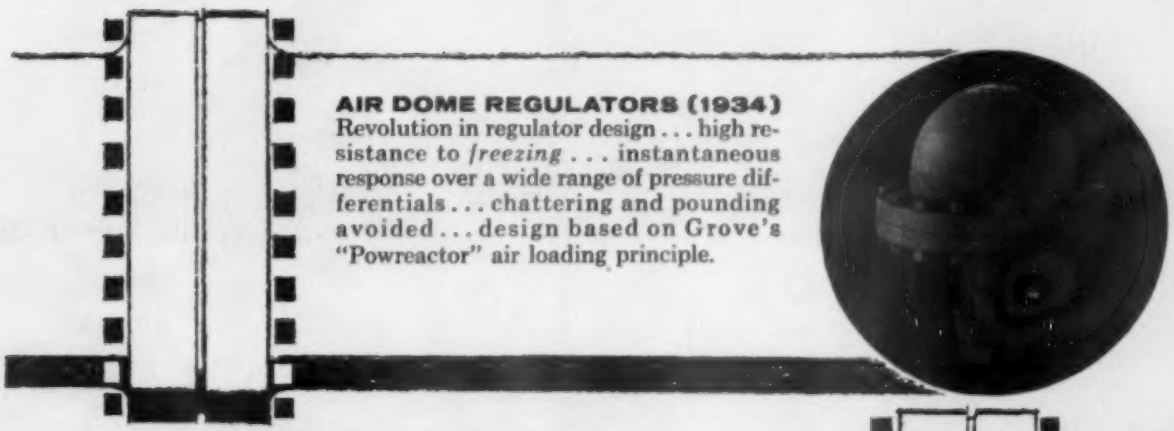

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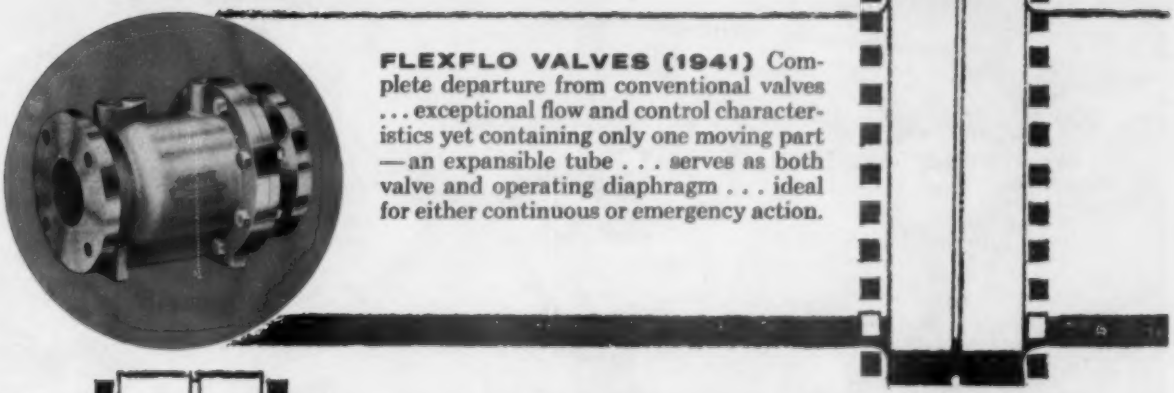

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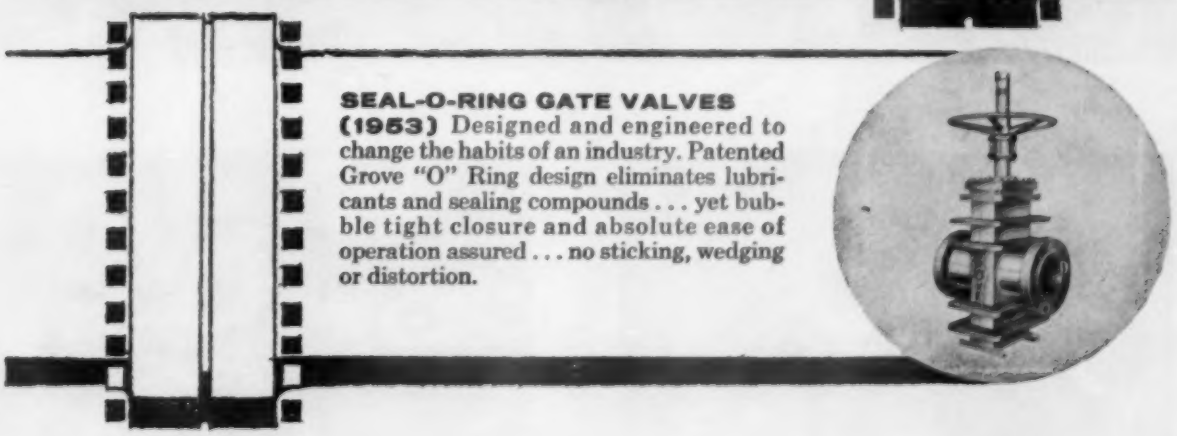

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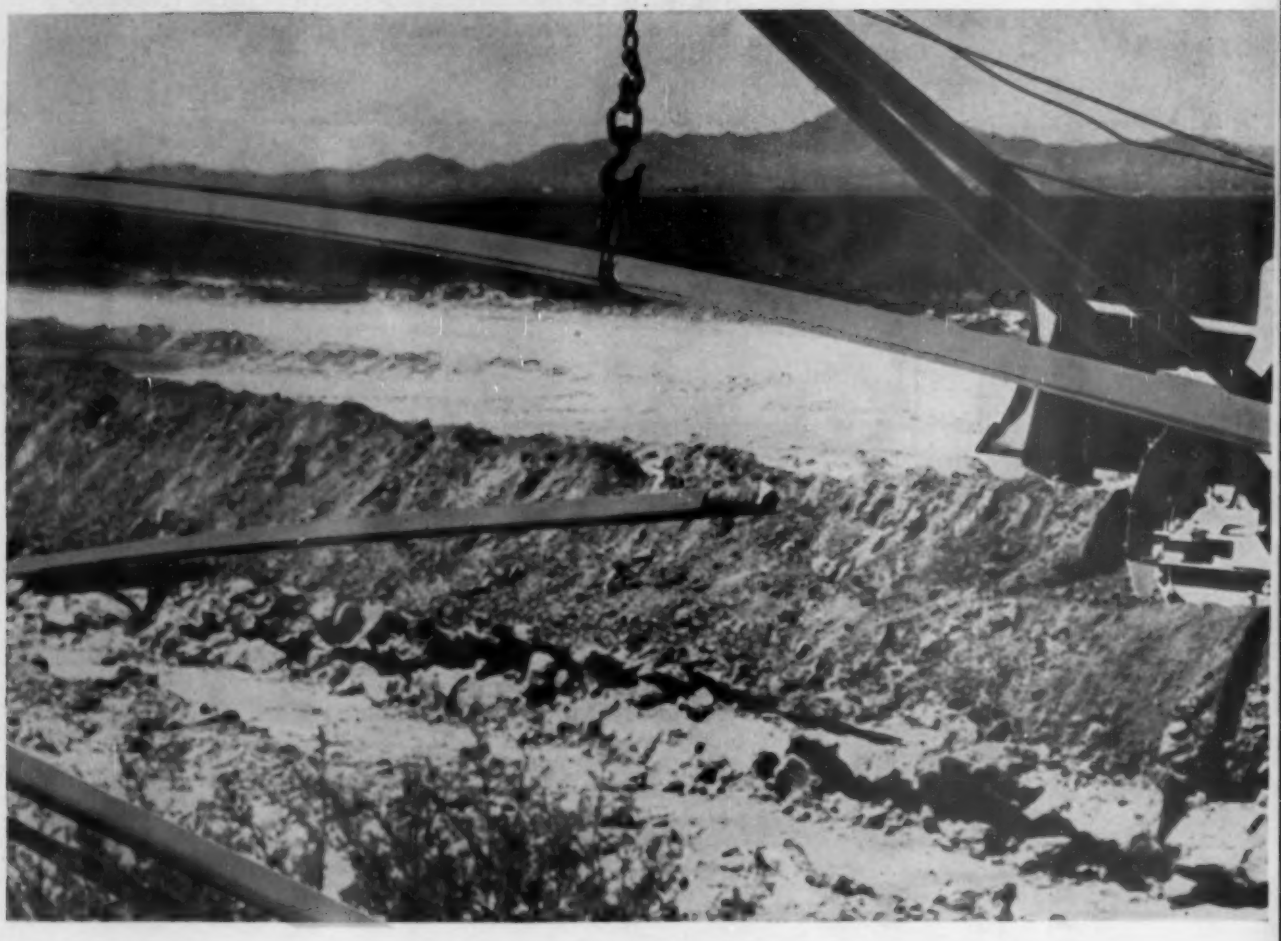

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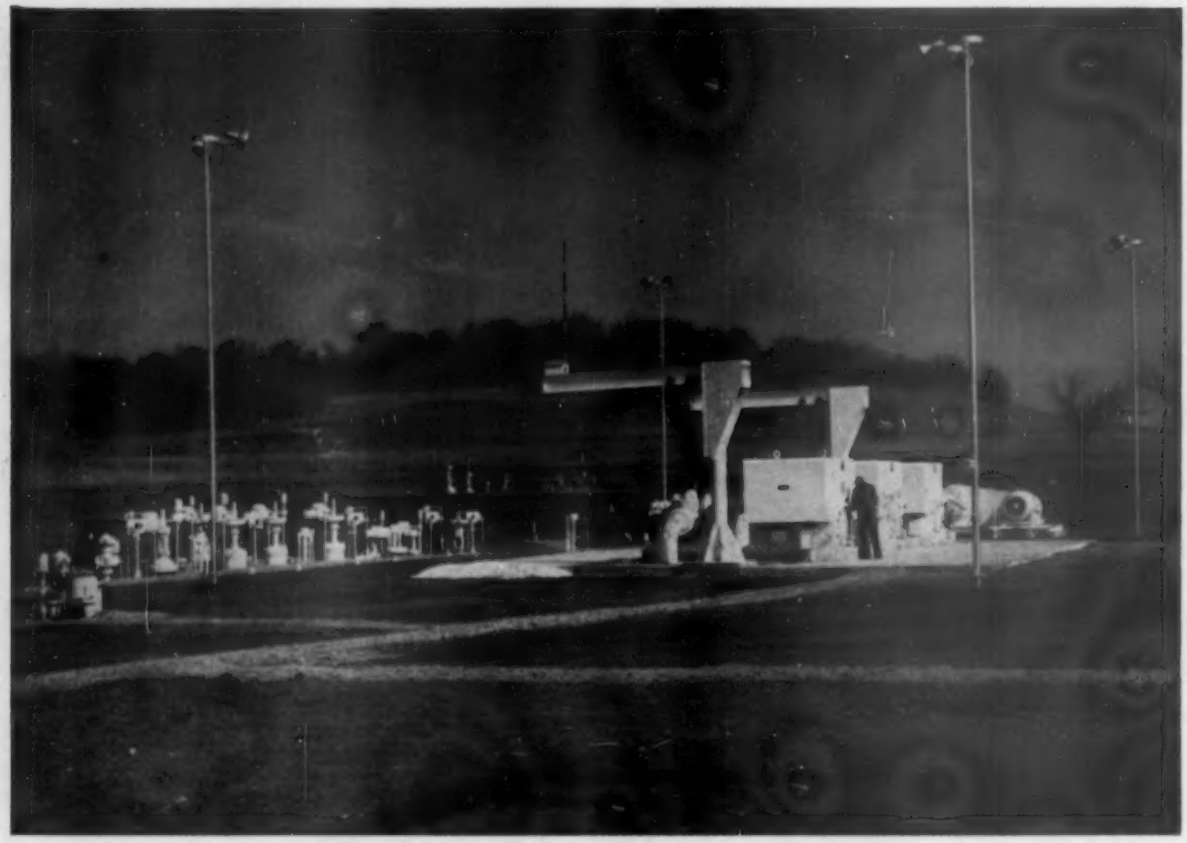

Remote-controlled crude station with three 1250 hp and one 200 hp electric motors

This remote-controlled crude station is typical of the modern trend in electrification. In addition to the four electric motors, the valves and sump pump are all controlled from a town some distance away. This installation is dependably served with utility electric power and a fine example of adaptability of purchased power to remote control.

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Shell Strengthens Constock's Position

Acquisition last week by the Royal Dutch Shell Group of a 40% interest in Constock International Methane, Ltd., is expected to greatly strengthen the Methane company's bid for world markets.

Constock's original owners, Continental Oil Co. and Union Stock Yard & Transit Co., now hold 40% and 20% interests, respectively. The company name will be changed to Conch International Methane, Ltd.

Constock pioneered tanker transportation of liquefied methane in its 2,000-ton tanker, the Methane Pioneer (PW—Sep.25'59,p76).

The ship has carried several cargoes from Lake Charles, La., to Canvey Island, in the Thames River.

The gas has been bought by the British Gas Council, which is now ready to accept commercial shipments.

Meanwhile, Constock has been negotiating for the sale of methane to several European countries and Japan, and completing plans for bigger ships to carry it.

Royal Dutch Shell, the world's second-biggest oil company, has the broadest worldwide market outlets, which are what Constock has been trying to develop for its product.

Constock has the know-how in liquefaction and refrigerated tanker transport of methane, plus patents on its techniques. Royal Dutch Shell—through more than 500 affiliates—has the vast market outlets that Constock needs to drive a wedge into markets for other fuels, plus equally vast production and refining interests.

The Royal Dutch Shell affiliate that will be the shareholder in Constock is Canadian Shell, Ltd.

"Royal Dutch Shell has the know-how in Europe, and the combination makes a good cocktail," a top Conoco executive says.

He might have added all of Asia, where Constock also wants to gain a foothold with a tanker link from Pakistan's Sui Field to Japan.

"To us," the Conoco official continues, "the greatest advantage in the move is having the giant Shell as a partner, even though it dilutes our interest from 50% to 40%. It's a good deal for both companies in that it launches the whole venture on a sounder—and, if you want to say so, bigger—basis."

Shell reportedly will participate in every phase of the liquefied methane venture.

Exactly what role it will play in the phases other than marketing—the actual production of the gas, its liquefaction, and its transportation—has not yet been made clear.

On this point, all one Constock official would say was: "As an international company, Shell naturally has great experience in the international sphere as a marketer. But in Conch, Shell will take part in all phases."

First target for commercial shipments will be Great Britain, whose Gas Council is now looking to natural gas as a possible, ultimate substitute for coal.

The council and Constock jointly own the tanker Methane Pioneer.

Next on the market list are West Germany and France, and then possibly the Scandinavian countries and Italy.

By 1975, West Germany is expected to have a gas demand of 178-billion cu. ft. a year, and France of 49-billion cu. ft. The forecasts are based on United Nations figures.

Constock says it's aiming at deliveries to Great Britain within two years and to West Germany and France within three, by which time it expects to have 20,000-ton tankers running.

It hasn't said how many vessels it expects to build. For initial deliveries to Great Britain, it's expected to build at least one 20,000-tonner, or two 10,000-tonners.

What's New / IN PIPELINES

The Canadian Petroleum Assn. and the city of Calgary have collided over current proposals to export gas from Alberta to the U.S. West Coast and the Midwest.

A total of 654-million cf/d would be exported by Alberta & Southern Gas Co. and West Coast Transmission Co. to the U.S. (PW—Dec.18 '59,p48).

Another 204-million cf/d would be moved by Trans-Canada Pipe Lines, Ltd., to the Midwest (PW—Dec.11 '59,p51).

In a brief presented at National Energy Board hearings, Calgary officials contended that the export plans don't adequately protect the city's gas needs.

CPA, representing 97% of Canada's producers, retorted last week that the brief was "a conglomeration of half-truths and errors of fact."

In another development on the export projects last week, Northern Ontario Natural Gas Co. sought NEB assurance that Trans-Canada's export plan won't force up domestic prices.

•

The plea of the Joint Committee for American Flag Tankers for a presidential order assuring U.S.-flag tankers 50% of oil imports has got a cool reception from at least one top government official (PW—Jan.15'60, p30).

John Allen, Commerce Dept. undersecretary, in an obvious reference to the request, said last week that "we must not arbitrarily impose restrictions as our answer to our shipping problems."

In a talk to the Marine Society of the City of New York, Allen urged that shippers improve their "competitive ability."

•

Atlantic Refining Co. has equipped one of its supertankers with a single-channel ship-to-ship radiotelephone, the second to be installed under a new Delaware River safety program (PW—Dec.11'59p.50).

Atlantic says it will soon equip all its ships with the new navaids, for which Federal Communications Commission approval was granted largely through the company's efforts.

•

Northern Natural Gas Co. is seeking authorization to spend $41.5-million to boost the capacity of its system by 153-million cf/d.

Of that amount, 75-million cf/d would go to Michigan Wisconsin Pipe Line Co. through a proposed pipeline from Northern Natural's main line at East Dubuque, Ill., to Janesville, Wis. (PW—Jan.15'60,p30).

The rest would go to present customers.

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Paris Shakeup to Spur Sahara Oil Plan

PARIS—By shaking up its cabinet last week, the French government served notice that it plans to keep tight control on Sahara oil—from well to pump.

The broad significance of the cabinet shakeup is that Finance Minister Antoine Pinay is out, fired by Gen. Charles de Gaulle following policy clashes with Prime Minister Michel Debre and other cabinet members.

But to the oil industry, the significance is that Pinay has vigorously opposed the direction of the government's current oil plans.

The shakeup is expected to pave the way for rapid start-up of SIP, the projected state-controlled refining and distributing organization (PW—Jan.8'60,p39).

Pinay's known opposition to the project was one of the reasons for his run-ins with Debre and others in the cabinet. Now he's been replaced by Wilfred Baumgartner, Governor of the Bank of France, whose appointment indicates that he will support the project.

Both government and oil officials are now betting that the national oil refining and marketing company will soon be in business.

Leading cabinet supporter of the SIP project is Industry Minister Jean-Marcel Jeanneney. He also dreamed up the scheme for Common Market preferences for Sahara oil through tariffs on products made from other crudes.

Pinay vigorously opposed both plans. He favored marketing French oil through the international companies. And the element he found most unpalatable in the SIP project was extending the powers of the Bureau de Recherches de Petrole to permit it to take a one-third interest in SIP.

Meanwhile, Sahara oil is proving to be a monumental headache for Common Market tariff experts, since the other five countries show little interest in Jeannency's plea for preferential treatment.

It now appears likely that the setting of a common tariff on oil products will be delayed until an energy policy is drawn up for the six-nation group. That's the opinion of European officials who gathered in Paris for economic discussions last week.

They report that the Brussels negotiations on common external tariffs for a group of special "problem" products have resulted in agreement on everything except oil.

How BP Will Handle Its Share

PARIS—British Petroleum's French affiliate plans to swap some of the Sahara crude it is required to take.

This was outlined last week by Joseph Hure, president of Soc. Francaise des Petroles BP, in an editorial in the company's house organ.

- Part will be processed in France, in the company's two refineries at Lavera and Dunkirk. (Their combined capacity: 124,000 b/d.)
- It hopes to exchange the rest with companies of the BP group for other crudes more suited to its needs.

Refineries in France will take between 200,000 b/d and 220,000 b/d of franc-zone crude this year, the BP affiliate's president says.

"We ourselves will take enough of this total to cover almost ⅓ of our refinery throughput," Hure reports. "And in 1961 the amount will be very sizably increased."

The delicate problem of contracts between Sahara crude producers and refiners in France who process other crudes is on its way to settlement, he says—thanks to good will being shown on both sides.

"In our case," Hure says, "this good will is laudable, since the BP group is already producing a surplus of crude.

"Thus, any room we make for franc-zone crude will be at the expense of our own production."

Composition of the Sahara crude presents a problem, the official notes.

"Since franc-zone oil does not fit the needs of our distribution," he says, "we will have to ask our group to exchange part of it for crudes from BP fields that are more suited to our needs."

And finally, there's the tanker problem too, since distance from Algerian ports to French refineries is about ⅓ the distance from Middle East loading ports. BP's big tanker fleet will therefore be underemployed.

"We have already sold three of our T-2's and canceled our order for a 69,000-ton tanker that was to have been delivered in 1962," Hure points out. "We were able to do this only after paying a big indemnity. Other cuts in our fleet will follow if necessary."

Egyptian Desert Oil Rights Stir Interest

CAIRO—Nearly 50 foreign firms are now said to have shown interest in the oil rights Egypt will offer in the vast Western Desert bordering Libya (PW—Dec.4'59,p50).

These indications, reported by the Cairo press, are in response to feelers put out by the Industry Ministry through Cairo's diplomatic missions abroad. The plan to reopen the area surrendered in 1958 by a U.S. group was sparked by revival of oil industry interest following the oil discoveries in neighboring Libya.

Cairo so far hasn't disclosed the list of companies potentially interested, but at least five U.S. and European firms were previously known to be taking a serious look at the prospects.

Among these: Pan American International, Mobil Oil, Anglo-Egyptian Oilfields (a Shell-British Petroleum affiliate), and Italy's state-owned ENI.

Pan American, in fact, has now completed a two-month geological survey of the westernmost parts of the area, near the Libya border.

Specifications for bidding are expected to be completed this month. Shortly thereafter, acreage stretching from the Libyan border to the Nile Valley will be offered for bidding.

The area is being zoned, and terms for each zone are being drawn up by a technical committee of Cairo's General Petroleum Authority.

14 U.S. Firms Win Spain's Sahara Rights

MADRID—The highly overlapped bids for Spanish Sahara oil rights are settled: 11 groups, with 14 U.S. firms participating, will get 35 blocks, PETROLEUM WEEK confirmed in Madrid this week.

The only step that remains before the awards are published in the official gazette is initialing of the contracts by the government and the oil companies, an official of Spain's hydrocarbons office said.

U.S. companies are represented in each of the winning groups.

Here's the list of winners and the specific blocks they'll get, as verified by the Spanish official:

- **Caltex,** six blocks, the biggest single award: Nos. 22, 31, 32, 41, 45, 57.
- **Tidewater,** with the Spanish Urquijo banking group, four blocks: Nos. 7, 13, 14, 24.
- **Standard of Ohio,** also with the Urquijo group, four blocks: Nos. 48, 52, 53, 60.

(Tidewater and Sohio plan a joint venture on their combined blocks.)

- **Gulf Oil,** with Cepsa (private Spanish oil company), five blocks: Nos. 9, 10, 16, 47, 51.
- **Cities Service and Richfield,** with Campsa (government marketing monopoly), four blocks: Nos. 30, 39, 40, 43.
- **Union Oil Co. of California,** with Petrolifera Iberica (private Spanish exploration company), three blocks: Nos. 1, 2, 8.
- **Pan American International,** with the Spanish government's INI, two blocks: Nos. 5, 6.
- **General American Oil Co. of Texas** with INI, two blocks: Nos. 17, 44.
- **Sun, Pure, and Champlin** Oil and Refining, associated with Iberica, two blocks: Nos. 15, 23.
- **Phillips Petroleum,** two blocks: Nos. 4, 11.
- **Atlantic Refining,** one block: No. 12.

For mainland Spain, meanwhile, the government expects to award three more permits shortly, in addition to 39 published in the official gazette last week.

The three additional permits will be awarded one each to Phillips, Tidewater, and either the Richfield-Cities Service group or Caltex, which are contesting the same block.

The 39 mainland permits now set for award go to four groups:

- **Esso Iberia,** 10 tracts totaling 325,851 hectares. (Esso, however, may not take all of these, it is understood.)
- **Gulf Oil with Ciepsa** (exploration subsidiary of Cepsa), 11 tracts totaling 261,986 hectares.
- **Campsa** (which has an agreement with Caltex for mainland exploration), seven tracts totaling 221,272 hectares.
- **Petrolifera Iberica,** in association with Union Oil of California, 11 tracts totaling 334,407 hectares.

Tapline in Two-Way Bind

Tapline, giant Middle East export pipeline, is having a tough time trying to stay competitive.

This is made clear by John Noble, president of Trans-Arabian Pipe Line Co. in a report to employes.

The U.S.-owned firm, a sister company of Arabian American Oil Co., operates the 460,000 b/d, 754-mi. pipeline that provides a Mediterranean outlet for Saudi Arabian crude.

One depressing factor on Tapline —but only one—is the economic squeeze caused by the world surplus of tankers, and the resulting reduced tanker rates between the Persian Gulf and the eastern Mediterranean.

This, Noble says, has put Tapline at a "serious competitive disadvantage" as an oil route, compared with tankers plying the Suez Canal route.

This competitive disadvantage, moreover, has been increased by political factors which are having a "further depressing effect" on Tapline's level of operations, Noble says.

"In spite of long and patient negotiations with the governments of each of the countries in which the company operates," Noble says, "the company's 'tariff-tax plan' offer, to subject the pipeline profits to 50% taxation, has not been accepted."

Instead, he points out, the governments (Saudi Arabia, Jordan, Syria, and Lebanon) "have insisted upon greatly increased payments, [which] would render the company's operations uneconomic under today's conditions."

These factors have "discouraged the users of the pipeline from utilizing it to its maximum capacity," Noble adds.

Though not included in his statement, statistics now available show that Tapline's deliveries of crude to the Mediterranean seaboard dropped in 1959 to the lowest point since 1956. The average was 336,394 b/d, well below the line's capacity.

Noble also expresses confidence, however, that a better understanding of Tapline's economic position "will ultimately prevail"—and that agreements will "eventually" be reached.

Pemex Budget Nears Mexico's

MEXICO CITY—Pemex, Mexico's national oil monopoly, this year will work with a budget fast approaching that of Mexico's federal government. And it still expects a deficit.

Mexico's federal budget this year will be $800-million.

The Pemex budget, biggest in its history, is set at a whopping $600-million—with a $2-million deficit anticipated.

Included in the budget is $144-million that Pemex plans to spend this year on new projects and completion of some in progress. Among these: part of the $40-million Tabasco-Mexico City gas line, 12 petrochemical plants, and Monterrey-Torreon product and gas lines.

Pemex officials say their estimate of gross income—$624-million—is purposely ultraconservative, and maintain that the budgeted $2-million deficit will probably not occur.

Income from "Mexican sales", is listed at $456-million, but this is underestimated, according to Pemex. This figure will be many millions higher, one official explains, when Pemex stops selling its cheap "Mexolina" gasoline and sells only "Super-Mexolina" as the lowest grade—at higher prices at the pumps.

This year, Pemex will pay 12% of gross income to the federal government in one lump sum, for the first time consolidating literally thousands of tax payments formerly made to federal, state, and local governments.

The federal government itself will then make these payments, eliminating hundreds of Pemex accountants.

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What's New / AROUND THE WORLD

LIBYA—The first two wildcats will be spudded shortly under Esso's new farmout from Libyan American Oil Co. (Texas Gulf Producing Co.) and W. R. Grace & Co. on Blocks 16, 17, and 20.

One will be in the middle of Block 20, untested so far. The other will be on a new structure in the western part of Block 17, where two wells capable of producing 2,000 b/d have been completed. Production tests are currently being made in a third, which was plugged back to 3,800 ft. from total depth of 8,060 ft.

Esso is investing $6-million to earn an undivided 50% interest in the three blocks, on which the new Esso Sirte, Inc., now becomes the operator.

•

TUNISIA—Socony Mobil's latest North African exploration venture is now set: An extensive evaluation program is planned in south Tunisia on a 10-million-acre permit held by Serept, its newest French-controlled partner (PW—Jan.8'49,p40).

This was announced last week following the Tunisian government's approval of a pact under which Mobil International acquires a 50% interest in the permit. Serept currently has one rig on the acreage and will continue as operator. The company is owned 23% by the Tunisian government, 56% by the French government's Bureau de Recherches de Petrole, and 21% by French investment groups.

•

SAUDI ARABIA—Crude output in 1959 gained 8% over 1958, which itself was 2% higher than 1957. The 1959 average was 1,095,399 b/d, a new record; up 80,370 b/d over 1958, the biggest annual volume increase since 1954.

•

CHILE—Enap, Chile's state oil monopoly, boosted its steadily expanding oil output 15% in 1959 to 6,426,000 bbl., averaging 17,600 b/d compared with 15,300 b/d in 1958. Refinery runs to its Concon refinery totaled 8,379,000 bbl., including imported crude.

•

VENEZUELA—Oil output in 1959 increased 6.3% over 1958, with an estimated 5.5% gain in exports, the Ministry of Mines & Hydrocarbons reports.

Its official bulletin places 1959 production at 2.8-million b/d. It also reports an 11.7% increase in output refined in Venezuela, and an 11.3% rise in inland oil consumption.

•

AUSTRIA—Crude output of the state oil enterprise declined 13% in 1959 to about 46,000 b/d while natural gas production jumped 31% to 106-million cu. ft. daily. Official totals for the year: 2,301,996 metric tons of crude, and 1.1-billion cubic meters of gas.

•

GERMANY—West German crude reserves were boosted 9% in the past year to nearly 75-million tons, according to latest official estimates. Of the total, 57-million tons are tagged as "certain" and 18-million as probable.

•

USSR—Latest indicator of expanding Soviet oil export plans: A third new 40,000-ton tanker is planned for completion this year. According to reports from Vienna, the "Budapest" will be identical to the "Peiping" (which last month started a test voyage from Leningrad) and the "Warsaw" (now being outfitted there).

•

ITALY—Italy's imports of Soviet oil are to include some 13,000 b/d of fuel oil and 50,000 b/d of crude this year, according to details just released on the new trade pact between the two countries.

•

JAPAN—Japan's first long-term contract for Russian crude—1½-million tons of it—was signed last week by an independent Japanese refiner with a 13,000 b/d plant.

Asia Sekiyu Co. announced it will pay $14.75 per ton c.i.f. Japan—less than prevailing prices—for 160,000 to 170,000 metric tons of Baku crude it will import in the first year of a six-year contract. The price will be negotiated in subsequent years. The deal coincides with current Soviet efforts to include 1-million tons of oil annually in a new trade pact (PW—Jan.15'60,p34).

•

SYRIA—A 10,000 b/d coastal refinery is included in Syria's ten-year oil development plan which is to cost $44.8-million, according to reports in Damascus. Syria now has a 20,000 b/d plant inland at Homs, which went into operation last summer.

•

JAPAN—Teikoku Oil, Japan's principal producer, thinks its new offshore gas strike 50 mi. south of Niigata may prove as big as Italy's Po Valley gas fields. The wildcat, slant-drilled from land, blew out last month, and has now been brought under control by the Myron Kinley organization, of Houston.

Teikoku president Kantaro Kishimoto says the coastal structure is 15 mi. long and 5 mi. wide and will require offshore drilling. He estimates it may be good for 35.3-million cu. ft. of gas daily. Preliminary assays show the gas is at least 97% methane.

•

BRAZIL—Latest hint that Brazil may open up oil development to private capital is included in a new United Nations report on "The Status of Permanent Sovereignty over Natural Wealth & Resources." It says both Brazil and Mexico have indicated they may follow Argentina's lead.

Kuwait to Offer Offshore Rights?

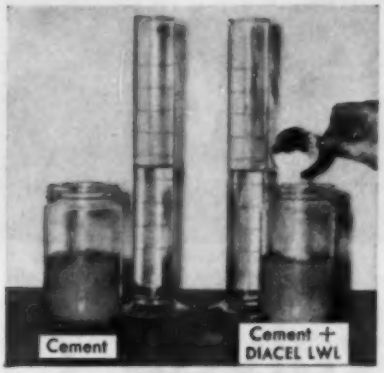
LONDON—Kuwait is interested in receiving "inquiries" about its offshore oil rights but is not inviting actual tenders at this time, the Sheikh of Kuwait's London representative told PETROLEUM WEEK.

The ruler, he added, is primarily interested in determining what companies may be interested.

In 1956 Kuwait similarly indicated interest in issuing offshore oil concessions—and received numerous bids. When the Suez crisis broke out, however, Kuwait suspended all negotiations.

Subsequently, recurrent reports that bids would be invited have been denied.

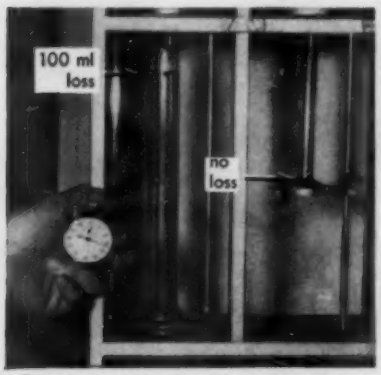
SEE the difference that MAKES a difference...



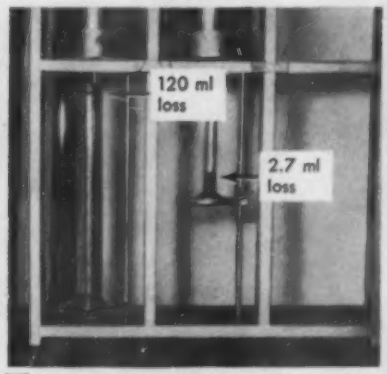
1 Demonstration begins with 2 jars of Portland cement (500 gms each) and 2 graduates of water (275 mls each). 2.5 gms of DIACEL LWL are added to cement at right.

2 After mixing in separate blenders, cement slurries are placed in filter presses. Air pressure of 100 p.s.i. is applied to each. Slurry with DIACEL LWL (½% by weight) is at right.

3 Water pressed from slurries drips into graduates and is measured. After just 35 seconds, slurry in press on left without DIACEL LWL has lost nearly 70 mls of water.



4 After one min. and 17 sec., slurry in the press on right with DIACEL LWL has not yet lost any water. Untreated cement has now lost over 100 mls of water.



5 After 10 min. under 100 p.s.i., cement with DIACEL LWL has lost only 2.7 mls of water (in small graduate). The other cement slurry has lost over 120 mls.

6 Opening filtration chambers shows cement with DIACEL LWL on right still fluid and pumpable. Cement without DIACEL LWL has dehydrated and is unpumpable.

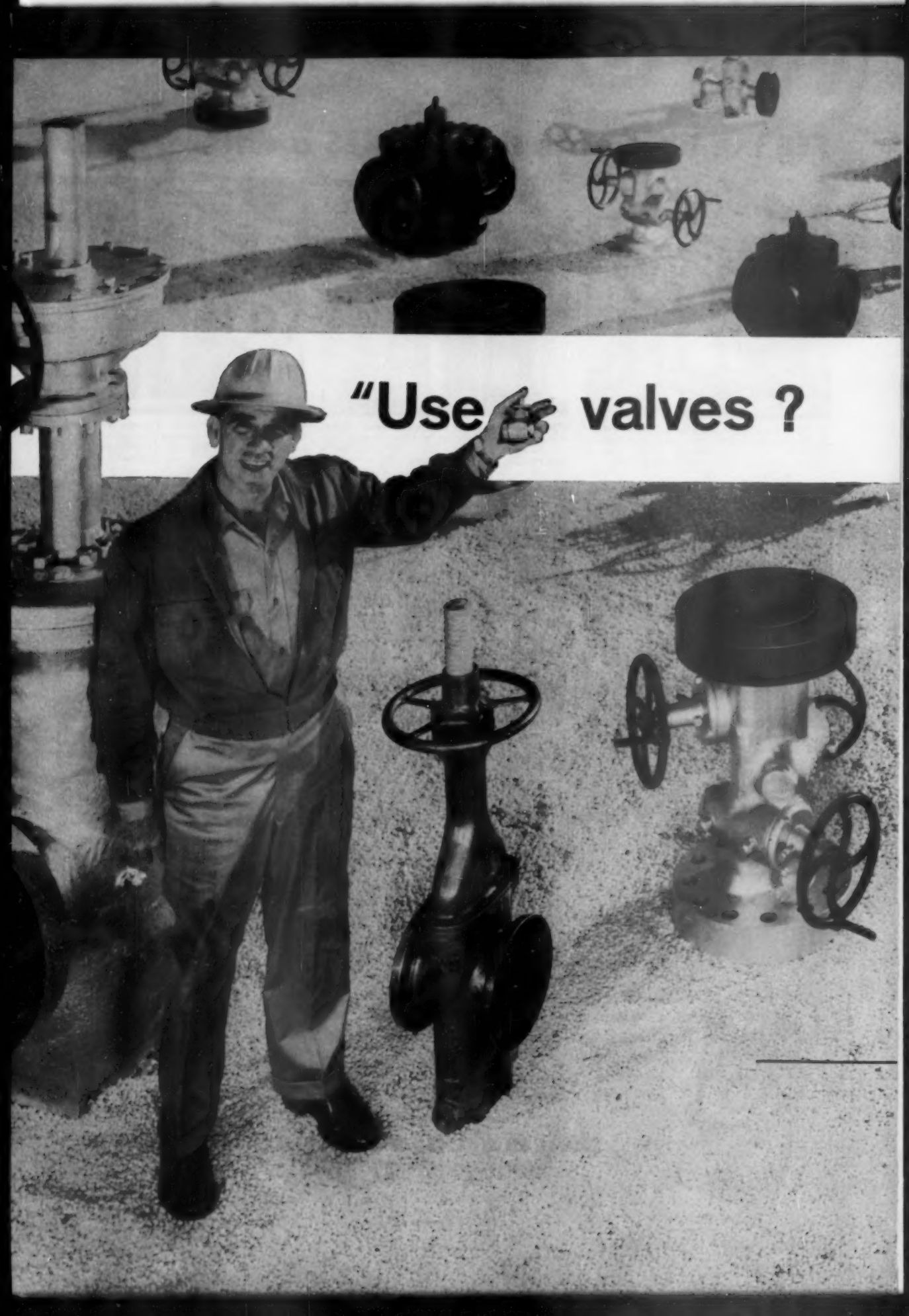
The Best Low Water Loss Cement Slurries Are Made With DIACEL* LWL

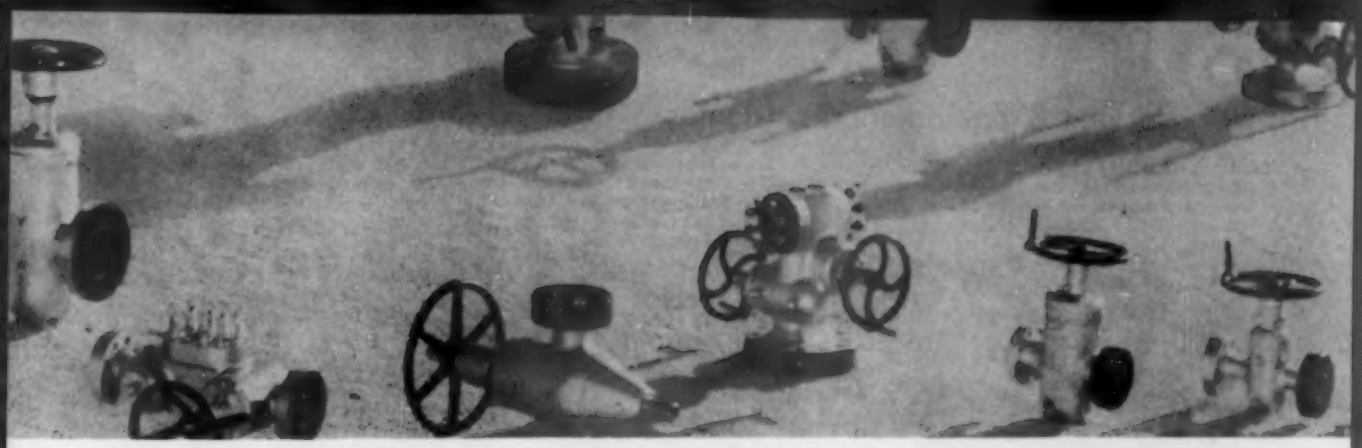
The laboratory demonstration above shows how adding a very small amount of DIACEL LWL to cement will provide low water-loss slurries that help prevent sticking, flash setting, and water damage to potential pay zones. The ability of DIACEL LWL to control water loss and thickening time makes it especially beneficial for squeeze jobs and for cementing deep, hot wells.

With versatile DIACEL additives, you can tailor-blend cement slurries that meet practically all conditions. This tailor-blending saves you money in much the same manner as engineering your casing string. It will pay you to get complete details and technical literature on all DIACEL CEMENT SYSTEMS. See your Drilling Specialties field engineer... or cement service company.

DRILLING SPECIALTIES COMPANY
Bartlesville, Oklahoma

*A trademark


"Use valves ?



Use the best !"

W-K-M. and ACF. Valves for the Petroleum Industry

Whatever your requirement, there's an industry-proved W-K-M or ACF valve that will handle the job superbly — and with long-range economy.

Since 1932, W-K-M Oilfield Valves by the tens of thousands have harnessed the complete range of wellhead pressures — up to 13,100 psi, the world's highest. ACF Plug and Ball Valves have been industry leaders in gathering and storage systems, oil refining and gas processing. And today there are more W-K-M Pipeline Valves in mainline service than any other valve.

Next time specify the *best* valves made — W-K-M and ACF!

Available from leading supply stores and wellhead manufacturers.

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Creative Engineering

W-K-M

DIVISION OF ACF INDUSTRIES
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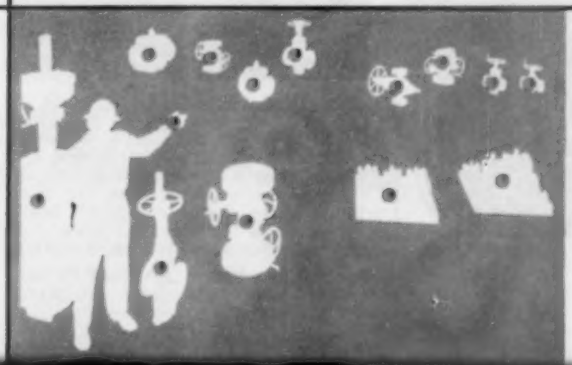
P. O. BOX 2117, HOUSTON, TEXAS



For complete information on valves by W-K-M, write for the following catalogs:

CATALOG 200: ① Standard API Gate Valves ② Balanced Stem Gate Valves ③ Multiple Completion Gate Valves ④ Cross Type Gate Valves ⑤ Regular Port Gate Valves. **CATALOG 300:** ⑥ Standard ASA Gate Valves. **CATALOG 400:** ⑦ ACF Lubricated Plug Valves. **CATALOG 1000:** ⑧ ACF Non-lubricated Ball Valves. **CATALOG 1200:** ⑨ Pressure Sealing Gate Valves.

5923

M. L. TALBERT has been named vice-president, engineering, for the Security Engineering Division, Dallas, one of the Dresser Industries. Talbert, formerly chief engineer, has responsibility for all of Security's engineering activities.

M. L. Talbert

C. C. Crider

C. C. CRIDER has been appointed general manager of regions for Bethlehem Steel Co., Supply Division, as a part of a recent change in the division's sales organization. He will continue to be located at Tulsa, where he was formerly general manager of stores. **H. L. Hawkinson, Jr.**, is regional manager for the new Gulf Coast region at Houston, which combines the Louisiana Gulf district and the South Texas district. Hawkinson was formerly division sales manager at Houston. **O. H. Crowe**, formerly district manager of the South Texas district, becomes assistant to Hawkinson, and will be located in Beaumont, Tex., and **W. J. Vark**, who was also named assistant to Hawkinson, will be located in New Orleans. Vark has been manager of the Louisiana Gulf district. **H. V. Harder** is regional manager for the newly formed South Central region, with headquarters in Dallas. Before his new appointment, Harder was division tubular sales manager for the Central division. **M. R. Griffith**, formerly Kansas district manager, is manager of the Mid-States region at Wichita, Kan. **W. T. Davis**, formerly Oklahoma district manager, moves up to assistant to the regional manager at Wichita. **Arthur Weber, Jr.**, moves up from Central division sales manager to regional manager of the Southwestern region. The West Texas and Texas Panhandle areas have been combined with New Mexico, except for the Four Corners area, and the southern half of Arizona, to form the Southwestern region. **E. R. Phillips**, formerly Panhandle district manager, is assistant to the Southwestern regional manager, and will be located in Amarillo. **E. S. Lewis** is manager of the Rocky Mountain region, which includes the Four Corners area, and the western two-thirds of Nebraska. Lewis, who was formerly Rocky Mountain district manager, continues to be located in Denver.

R. L. FREDERICK has been named to the new position of executive director, International Division, of Timken Roller Bearing Co., Canton, Ohio. He will be in charge of coordinating Timken Roller Bearing Co. international operations, and will be mainly concerned with manufacturing in overseas locations. Frederick, with Timken since 1940, was most recently assistant to **D. A. Bessmer**, Timken's president.

P. D. Muir

H. E. McNeill

H. E. (Bud) McNEILL has been named product sales manager, and **P. D. MUIR** division engineer, of a new central product sales division recently set up in Tulsa by the Dowell Division of Dow Chemical Co., in Tulsa. McNeill will report directly to **Ralph H. Smith**, Dowell's director of sales. The new division will handle sales of all bulk chemicals. Such sales were previously under the direction of district managers.

ROBERT W. ANDREWS becomes a process engineer, and **H. George Wernette** a sales engineer, for Southwest Industries, Inc., Houston. Andrews has been associated with the consulting engineering firm of Prengle, Dukler & Crump, and Wernette has been with Warren Petroleum Co. A new chemical engineering position is held by **Thomas H. Ellis**, who was formerly associated with Atlantic Refining Co.

RICHARD J. FARRICKER has joined Geyer, Morey, Madden & Ballard, Inc., New York advertising agency, as executive vice-president. He will have general supervision of the Sinclair Oil Corp. and Sinclair Refining Co. accounts. Farricker was most recently management service director of McCann-Erickson, Inc., New York. He joined that agency in 1955 as head of the Chrysler Corp. account, in Detroit. He moved to New York in 1956, and continued as head of the Chrysler account until 1958, when he took charge of the Esso Standard Oil Co. account.

R. J. Farricker

S. D. Goins

S. D. GOINS has joined the Baash-Ross Division of Joy Mfg. Co., as operations manager at its Odessa (Tex.) plant. He has been general superintendent of Bethlehem Steel Co., Supply Division, at Corsicana, Tex., since 1944.

WILLIAM F. MARTIN has been appointed director of manufacturing services for Borg-Warner Corp., Chicago. He was most recently vice-president in charge of manufacturing for Borg-Warner's Byron Jackson division, West Coast producer of oil field tools, rubber products, and electronic instruments. Martin was recently responsible for the construction and start-up of a factory at Etten en Leur in the Netherlands, for the manufacture of Byron Jackson oil tools for the free-world petroleum markets. He joined Byron Jackson in 1956, as manufacturing manager.

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Whatever the GRADE and the VOLUME of
NATURAL GASOLINE
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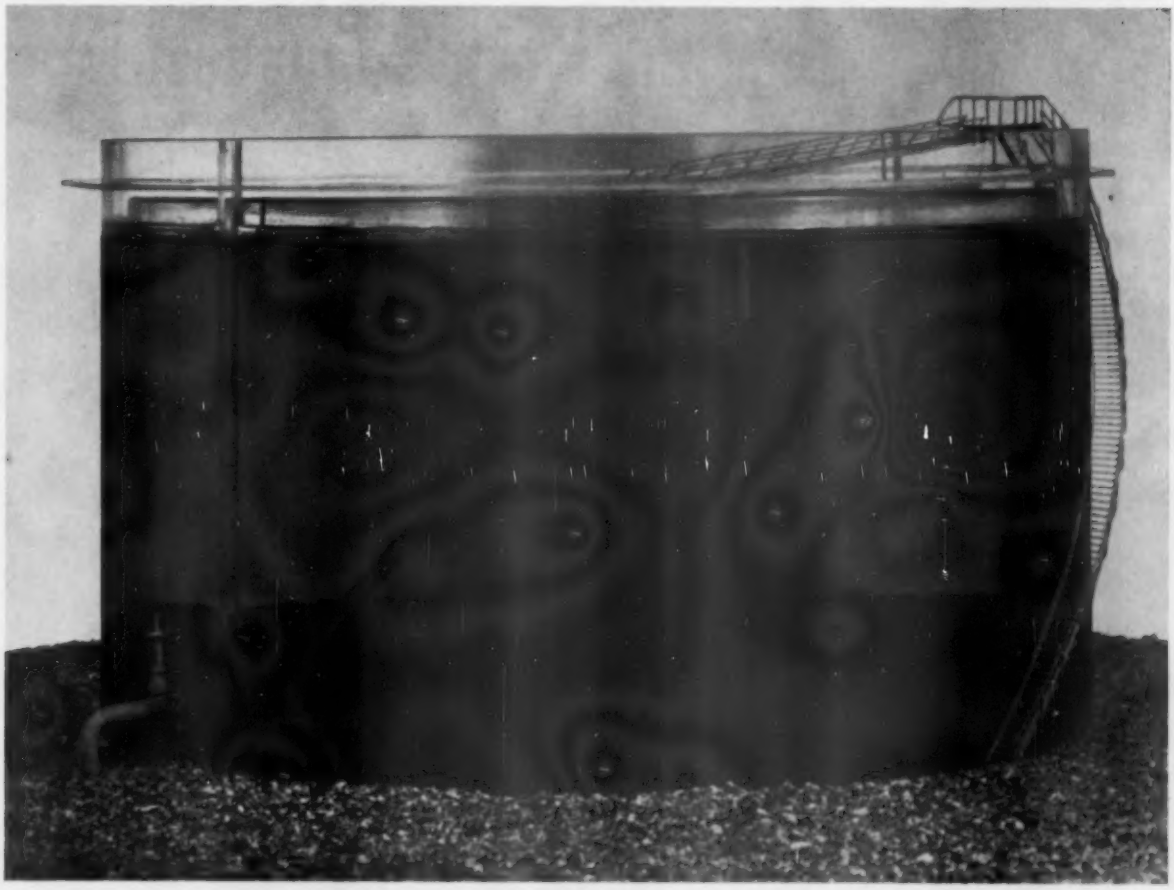
W. F. Martin

D. M. Pruett

DRESSLER M. PRUETT moves to Cooper-Bessemer Corp.'s Tulsa district office as a sales engineer. He was formerly assigned to the sales department at the company's headquarters in Mt. Vernon, Ohio.

ON FLOATING ROOFS–



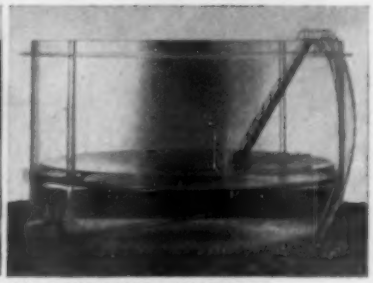
Chiksan Swivel Jointed Drain Lines team up strength + flexibility + endurance

The unlimited flexibility of Chiksan swivel joint equipped floating roof drains mean money saved on every tank. First, Chiksan drains cost less than rubber hose —and, you count their useful life in years instead of months. Chiksan swivel joints and lines easily withstand tank pressures —never kink to cause drain stoppage. Both lines and joints are available in many types of metals to meet specific liquid storage requirements.

Plan now to include Chiksan drain lines in all new tank installations and in present lines that need replacement. For details, contact Chiksan or your nearby Chiksan field representative.

FULL TANK. Drain line flexes readily. Easily withstands tank pressures.

TWO THIRDS FULL. All metal line moves freely with the floating roof without danger of kinking.



TWO THIRDS EMPTY. Line folds compactly. Provides long years of trouble-free service.

CHIKSAN fmc

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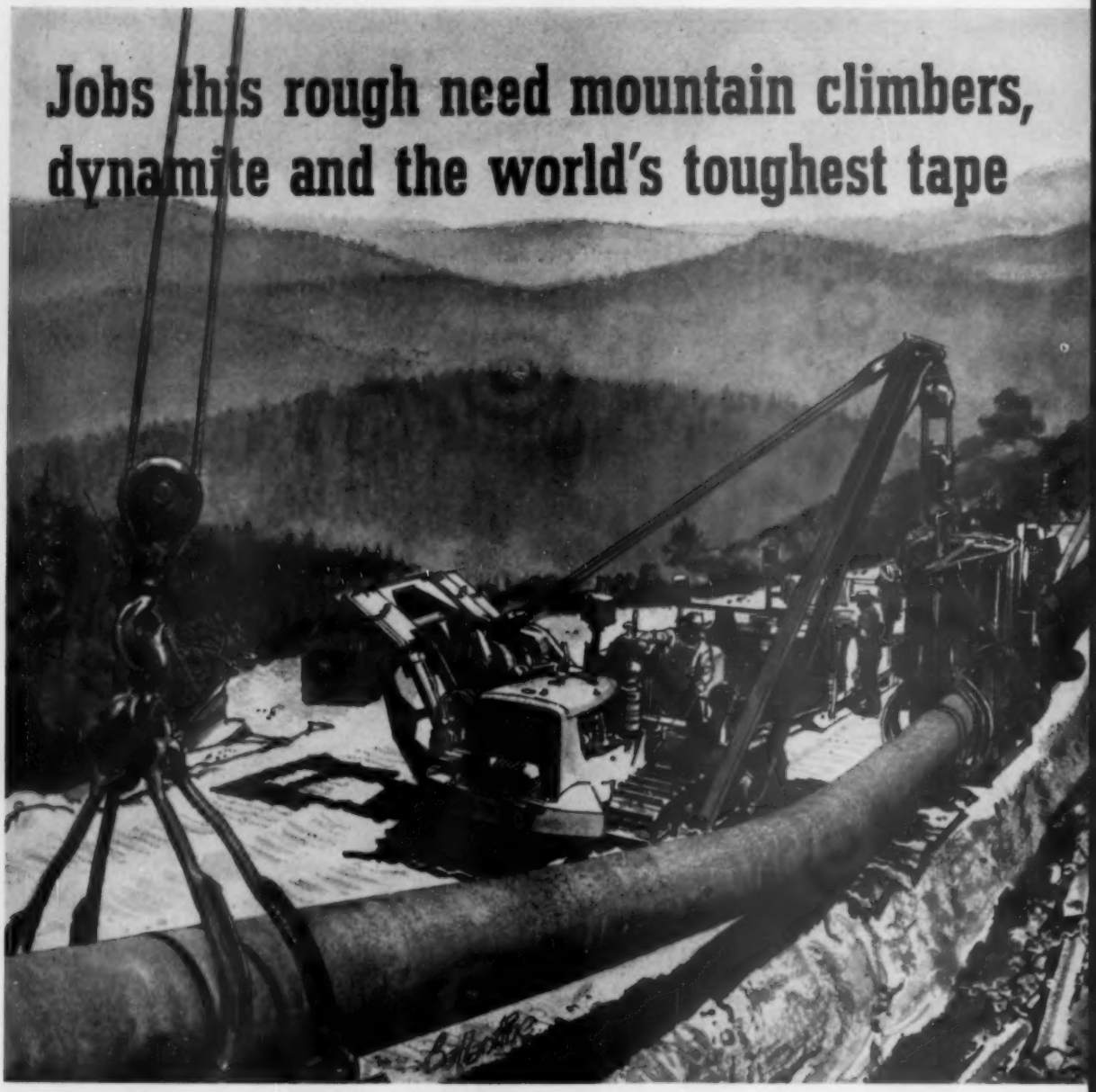
CHIKSAN COMPANY—Brea, California • Chicago 5, Ill. • Newark 2, N. J. • Divisions: Chiksan International, Homer Valves, Weco • Subsidiary: Chiksan of Canada Ltd.

Jobs this rough need mountain climbers, dynamite and the world's toughest tape



New Mandalay line goes through solid rock, up 40% grades, over 8,000-ft. mountains—with Polyken protection all the way

Before they took on 50 grueling miles of treacherous southern California mountains, the Richfield Oil Company people gave their materials a pretty thorough going over. Among other things, they made doubly certain of their protective coating.

Most Practical Protection Yet

They used Polyken's latest development, Extra Strength No. 960 Pipeline Roll. Like a lot of other large companies in recent years, they discovered that Polyken is the toughest, most practical protection you could ask for in modern pipe coating.

Many Hundreds of Miles of Proof

Who are these other companies? There's the Houston Texas Gas and Oil Corporation. They put Polyken tape on 1600 miles of gas line from Louisiana to Florida. The National Iranian Oil Company used Polyken for 200 miles of desert and mountain line. Phillips Petroleum put Polyken on several hundred miles of line in Texas and Canada. Jagged rock, coral swamp,

Using tensioned-spindle equipment, pipe is cleaned and wrapped in one factory-smooth operation. Polyken Tape is ready. No primer, no drying or cooling. No fumes or fire hazards.

burning sand and frozen ground—Polyken is at its best under the worst conditions.

The Question to Ask

When you start inquiring, be sure to ask these companies about relative costs. Compare Polyken with hot dope, and see for yourself how much they saved.

The Polyken method gets more footage *per day*, with far fewer men. With far less equipment and hauling costs. In fact, you have fewer problems all around—and enduring protection.

To get the complete details on savings and durability, check with your Polyken representative or call the Polyken Tape Coating Distributor nearest you. Or simply write Polyken, 309 West Jackson Blvd., Chicago 6, Ill.

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Polyken®

EXPERIENCED IN PROTECTIVE COATINGS

THE KENDALL COMPANY
Polyken Sales Division

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FORGED STEEL

VALVES

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DU PONT Petroleum Chemicals NEWS

Number 100 in a Series of Bulletins for the Petroleum Industry

JANUARY-FEBRUARY 1960

WHAT'S NEW IN DYES?

Du Pont Improved Free-Flowing flaked dyes provide many advantages

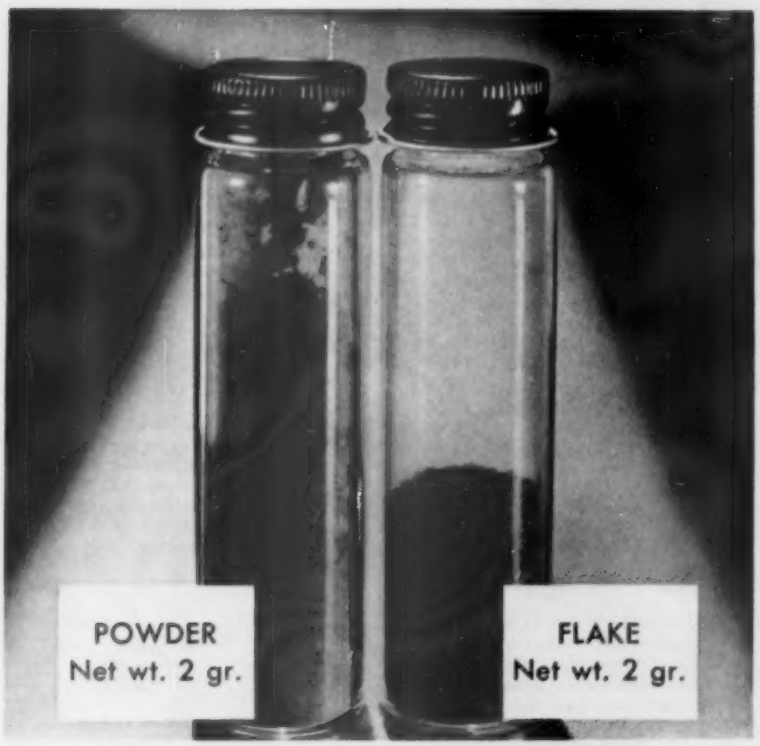
ADDITIVES MANAGER

W. E. BETTONEY is now serving as Manager of Additives. In this capacity he is responsible for the sale and technical services for all Du Pont additives other than tetraethyl lead.

Prior to this appointment, Mr. Bettoney served as Technical Manager for the Eastern Region. And before being named to that post, he was assistant director of the Du Pont Petroleum Laboratory.

Mr. Bettoney joined Du Pont in 1946 as an engineer in the Petroleum Laboratory. For several years he was associated with application research on the effects of chemicals on the performance of petroleum products in engines.

Mr. Bettoney is a mechanical engineering graduate of the University of Maine. Before joining Du Pont he was with the Dodge Division of the Chrysler Corporation in Chicago. Mr. Bettoney is a member of the S. A. E. and A. C. S.



Du Pont Oil Colors in flaked form occupy less space.

Du Pont oil colors have been available in either powder or flaked form for some time. Because flaked dyes are virtually dust-free, they have been constantly gaining in popularity. The newest Du Pont flaked dyes are now further improved so that they dissolve more readily than ever. As a result, more and more refiners will find that Du Pont's fast-flowing, fast-dissolving, dust-free flaked dyes are more satisfactory than ever.

Less bulk The flaked form of Du Pont Petroleum dyes takes up approximately half the space of the same dye in conventional, powdered form, thus saving refiners valuable storage space. Furthermore, flaked dyes come in short drums (22 inches high) which are easily handled.

Many colors You can get Du Pont flaked dyes in orange, red and bronze. Blue dye is available in a crystalline form which has the same advantages as flaked dyes. Samples and full details are available now from your Du Pont Petroleum Chemicals representative.

ADVERTISEMENT—Prepared for the Petroleum Chemicals Division of E. I. du Pont de Nemours & Company (Inc.)

OVER

DU PONT *Petroleum Chemicals* NEWS

New instrument for studying surface ignition

Engineers at Du Pont's Petroleum Laboratory have announced the development of a new electronic instrument for investigating surface ignition.

Used in any car

This instrument will help provide clues to both better fuels and improved high-compression power plants, since it is now possible to study surface ignition in any automobile by merely installing special pressure-sensing spark plugs in the car's engine. Surgery to the engine is eliminated.

Using a double-tracked recording tape, the new instrument determines the exact time in the cycle when the combustion pressure reaches its peak. Such information is developed for each cylinder.

Transducer at work

Heart of the electronic instrument is a special normal-sized spark plug equipped with a built-in miniature piezoelectric pressure transducer. These plugs can be substituted for standard plugs in most cars.

Variability of the instrument is less than plus or minus one-tenth of a crank-angle degree, or about five millionths of a second at 3200 engine revolutions per minute.

If you would like to know more about the instrumentation and what's been learned through it, write for a copy of "Surface Ignition—A New Look with a New Instrument."

How to keep copper from making trouble

Copper-bearing surfaces can exert a harmful pro-oxidant effect on petroleum products. In helping overcome this, Du Pont Metal Deactivator chelates with copper ions and thus essentially removes them from the reaction.

Another Du Pont product, Du Pont Metal Suppressor, reduces the possibility of copper catalyzed reactions by forming a film on the copper surface which insulates the metal from the petroleum product. Thus, copper strips which have been exposed to Du Pont Metal Suppressor are passive for some time after—even when contacted by products that do not contain the compound. Du Pont Metal Suppressor also works on brass and monel.

CONTINUED *What's new in dyes?*

Du Pont Oil Red A is announced

The most recent addition to the line of Du Pont dyes made expressly for the petroleum industry is Du Pont Oil Red A.

This is an oil-soluble dye for use with gasoline and other petroleum products. It imparts a slightly different shade to gasoline which is generally considered to be 10 to 25 per cent stronger, depending on test procedure used, than conventional reds, such as Du Pont Oil Red.

Two forms Standard packages contain 100 lbs. net. You can get Du Pont Oil Red A in powdered form, shipped in non-returnable 41-gallon fiber drums. Flaked Oil Red A comes in the 24-gallon drum.

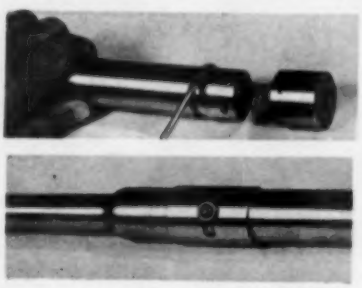
For more information, contact the office nearest you. Please see the listing below.

Modified Du Pont Dry-Dye Eduction probe offers many advantages

Until a few years ago, the dry-eduction method of handling dyes was little used. Equipment was not very efficient. Clogging, as well as other difficulties, was an ever-present problem.

Then in 1956, Du Pont introduced the "tube-within-a-tube" design. So successful was this probe that it soon became the most popular dye-handling tool in the industry.

New brass tip Now, after several years of experience, further refinements in the Du Pont design have been made. For example, brass is now used in the tip for increased durability. And the tip can be easily removed merely by flexing the securing clip with a screwdriver.



Improved air inlet The other major change is an improved air inlet which provides for a continuous flow of air as well as for easy setting of the air port to fit individual needs.

This model probe is known as No. WT-503 Du Pont Dye Probe. Your local Du Pont representative can fill you in on availability as well as discuss the possibility of modifying the earlier model with new parts.

Or write for the just-printed Additives Handling Bulletin No. 5.

SALES OFFICES

Chicago 3—8 So. Michigan Ave. ..... RAndolph 6-8630
Cleveland 15—101 Prospect Ave. ..... MAin 1-3422
Houston 2—705 Bank of Commerce Bldg. ... CApitol 5-1151
Los Angeles 17—612 So. Flower St. ..... MAdison 4-1354
New York 20—45 Rockefeller Plaza ..... COlumbus 5-2342
Philadelphia 2—3 Penn Center Plaza ..... LOcust 8-3531
Pittsburgh 22—1 Gateway Center ..... ATlantic 1-2933
San Francisco 4—111 Sutter St. ..... EXbrook 2-1934
Seattle 3—4003 Aurora Ave. ..... MElrose 2-6977
Tulsa 1—1811 So. Baltimore Ave. ..... LUther 5-5578
In Canada—Du Pont of Canada Limited, Petroleum Chemicals, 85 Eglinton Ave. East,
Toronto 12—Ontario ..... HUdson 1-6461
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Du Pont Tetraethyl Lead and other Petroleum Additives

OVER

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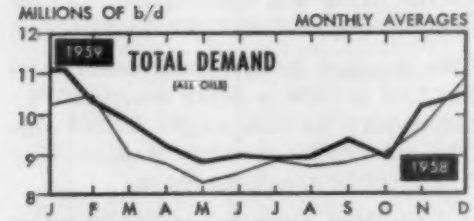
PETROLEUM WEEK'S

Fingertip Figures



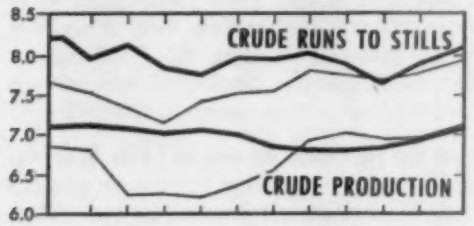
Figures for period ended January 15, except as noted

TOTAL DEMAND

Latest 4-week average	10.617
Year ago	11.125

DISTILLATE DEMAND

Latest 4-week average	3.128
Year ago	3.767

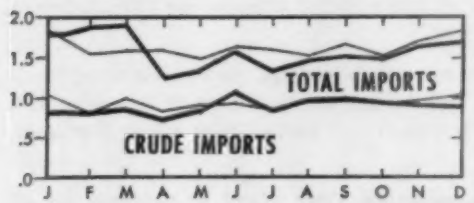


RUNS TO STILLS

Latest week	8.302
Previous week	8.396
Year ago	8.129

CRUDE PRODUCTION

Latest week	7.146
Previous week	7.112
Year ago	7.089

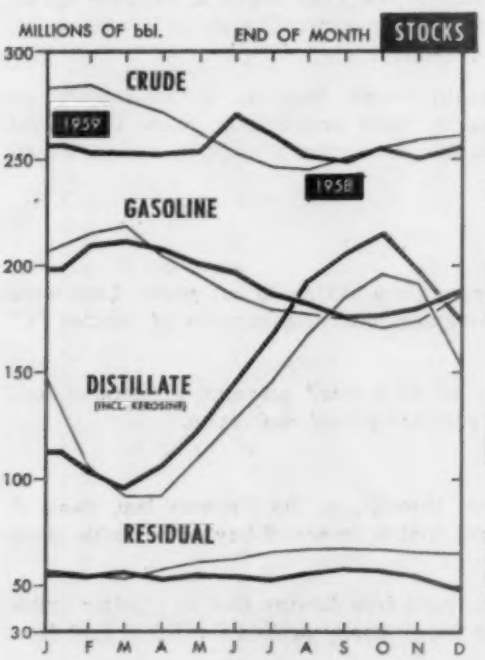


TOTAL IMPORTS

Latest week	1.780
Previous week	1.709
Year ago	1.821

CRUDE IMPORTS

Latest week	.960
Previous week	.758
Year ago	.868



CRUDE STOCKS

Week-ended 1-9	248.9
Previous week	252.9
Year ago	260.3

GASOLINE

Latest week	196.5
Previous week	193.9
Year ago	190.7

DISTILLATES

Latest week	175.1
Previous week	171.0
Year ago	132.9

RESIDUAL

Latest week	51.3
Previous week	52.3
Year ago	59.4

Do economists "forecast" the industry into oversupply? It's a question worth considering in view of the perennial surplus that plagues petroleum.

Economists generally estimated that refinery runs in the first quarter of 1960 should average between 8.3-million b/d and 8.5-million b/d. Even the Bureau of Mines, usually more conservative than company economists and considered the "official" forecast, estimated first quarter runs at 8,450,000 b/d.

Subsequent to making its first-quarter estimate, the bureau, in its monthly forecasts of market demand for crude, has estimated January runs at 8.5-million b/d and February runs at 8,420,000 b/d.

Yet at the same time that it made its forecast for February, the bureau commented: "At the end of 1959, stocks of distillate fuel oil were 24.1-million bbl. higher than a year ago."

Some company officials and others say that another year of oversupply may already be in the making.

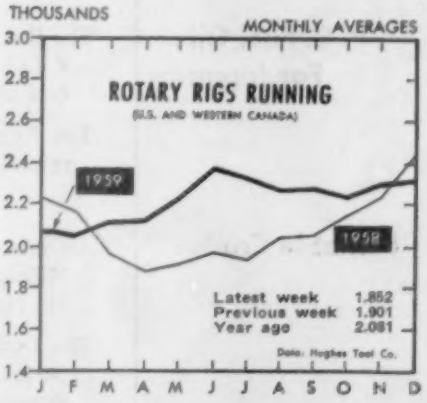
It's too early to predict that flatly—since the warm weather to date could be "corrected" in the remaining months of the heating season.

But should the demand for distillates jump sharply, the industry has ample inventories and ample capacity to make enough fuel oil to meet demand.

The Texas Railroad Commission reported this week that its comparison of stocks of crude and major products with the estimated desired levels showed a surplus of 51.2-million bbl.

Of that total, stocks of distillates (including kerosine) are 28.2-million bbl. in excess of "ample requirements."

But apparently the industry prefers to "live dangerously" and oversupply its markets rather than to keep supply balanced.



The Market Trend

Russian Oil: What Ivan Wants, Ivan Gets

Like "Sputnik," lots of new Russian words are getting around: Mukhanovskaija, Tartar, Sokolovogorskaia, Krasnodar, and Tujmaza. In case you haven't guessed, these are stock-in-trade crudes of the Soviet Union.

And all signs indicate that the Russians have a razzle-dazzle sales campaign on from Japan in the Far East to Chile in South America. With its government oil agency, Sojuznefteexport, the Reds have a decided edge on their Western competitors. They can sell for economic reasons. They can sell for political reasons. Cost need not be a deciding factor.

This week, trade delegations from West Germany and Chile are in Moscow, and oil is high on the agenda. Chile appears willing to buy some Russian oil if the price is right. West Germany is trying to iron out details of the third year of a three-year trade agreement started in 1958.

In the international refining trade, there is a Russian behind every bush. They recently clicked off a deal with Brazil. They have upped their sales bogey to Japan for 1960 from 100,000 to 1-million tons. There's a rumored deal with Portugal. There's a quote outstanding (15% off Persian Gulf prices) for Egypt's 1960 business. Black Sea bunker oil was offered to Uruguay for Spring delivery. Selling pressure is heavy in the Baltic.

The Russians still lack some of the technical finesse of their Western counterparts. They haven't yet got around to tailoring crudes by spiking them with gasoline or gas oil to suit the customer's demand pattern. They haven't yet emphasized the sale of unstabilized crudes—so the customer gets the benefit of duty-free LP-gas.

Commercially, however, they can teach lessons. As one Russian trade expert said to Petroleum Week: "There are many things to consider in a sale—the currency, the freight, the payment period, plus other commodities that may be involved."

Sometimes the Russians are deceptive. They might on occasion sell oil at the "full" price, but buy back another commodity at an inflated price. It's a cute way of selling oil at a discount.

And sometimes they are really rough. Recently, Soviet traders approached marketers in Scandinavia. Their proposition: Name the lowest major oil company price you can find, no matter what it is, and we'll beat it by 10%.

P. G. Fuel Oil: For Japan:

The Russians are not the only companies willing to cut prices. Last week a Japanese buyer switched suppliers on three cargoes of bunker "C" fuel at a saving of 17¢ a bbl.

The former supplier sold heavy oil at a small discount off Persian Gulf prices. The new Persian Gulf supplier quoted c&f Japan.

Burnable Crude:

An interesting deal almost went through in the Midwest last week. A Michigan industrial buyer came within an ace of buying burnable crude via pipeline from Canada.

The trick here would have been quota-free foreign fuel at pipeline transportation rates. However, the buyer finally settled for No. 6 fuel from Superior, Wis.

The Market Place AROUND THE WORLD

Prices compiled for PETROLEUM WEEK by Platt's OILGRAM Price Service and National Petroleum News, McGraw-Hill Publications

All prices as of January 18

Bold face type indicates changes from previous week

KEY PRICES—REFINED PRODUCTS

(¢ per gal. except dollars per bbl. where $ is shown)

Western Hemisphere

U.S. Gulf Coast, cargoes
- Gasoline, 98 oct prem....12-13
- Gasoline, 92 oct reg....10.75-11.5
- Kerosine....9.5-10
- Heating oil, No. 2....8.625-9.1
- Gas oil, 48-52 d.i....8.875-9
- Fuel oil, bunker "C"....$2.00-2.10

Caribbean, cargoes
- Avgas, Grade 100/130....14.75
- Gasoline, 93 oct research prem....11
- Gasoline, 87 oct research reg....10.125
- Gasoline, 79 oct research....9.375
- Gasoline, 70-72 oct motor method....9.25
- Kerosine....9.75
- Heating oil, No. 2....8.625
- Gas oil, 48-52, d.i....8.875
- Fuel oil, bunker "C"....$2.00

New York Harbor, barges
- Kerosine....10-6-11.1
- Heating oil, No. 2....9.6-10.1
- Fuel oil, No. 6....$2.37-2.47

Okla.-Group 3, northern shpt., bulk
- Gasoline, 91 oct reg....10-11
- Kerosine....10.5-10.75
- **Heating oil, No. 2....9.25↓-9.5**
- Fuel oil, No. 6....$1.60-1.80

Chicago, bulk
- **Gasoline, 91 oct reg....11↓-11.25↓**
- Heating oil, No. 2....9.625-11.35
- Fuel oil, No. 6 high sulfur....7.5

Los Angeles, rack
- Gasoline, 88 oct reg....11.5-12.65
- Diesel fuel, PS 200....7.75-11.25
- Light fuel, PS 300....$2.80
- Heavy fuel, PS 400....$2.15-2.35

Natural Gasoline, Grade 26-70
- FOB Group 3....4.5
- FOB Breckenridge, Tex....4

LP-Gas
- Propane, Oklahoma (Group 3)....5
- Propane, Baton Rouge....5.625-5.875

Pennsylvania Lubes
- Bright stock, 25 p.t....23
- 200 vis. neutral, 25 p.t....27

Mid-Continent Lubes, Tulsa basis
- Bright stock, solvent, 95 v.i....25-26
- Neutral, solvent, 200-210 vis....21.5-22.5

Gulf Coast Lubes
- Bright stock, solvent, 95 v.i....25
- Neutral, solvent, 200 vis....21.5

Eastern Hemisphere

Singapore (Pulau Bukom), cargoes
- Avgas, grade 100/130....15.875
- **Gasoline, 79 oct research....9.75↓**
- **Kerosine....10.625†**
- **Gas oil, 48 d.i. minimum....9.875†**

KEY PRICES—CRUDE OIL

(2¢ differential per deg. of grav. applies except as noted)

Western Hemisphere

United States (at the well)
- Mid-Continent, (Okla.-Kan.), 36.0-36.9....$2.62-2.97
- North Dakota, 36.0-36.9....2.62-2.87
- Texas:
  - Gulf Coast, low cold test, 26.0-26.9....3.50
  - Gulf Coast, Upper & Lower, 26.0-26.9....2.92-3.22
  - West Texas, sweet, 36.0-36.9....3.00
  - West Texas, N.M., inter., 36.0-36.9....2.93
  - West Texas, N.M., sour, 32.0-32.9....2.71
  - East Texas, flat....3.05-3.25
  - Mirando, 28.0-28.9....3.31
- Illinois Basin, flat....3.00
- Pennsylvania Grade, Bradford dist., flat....4.55
- California, Signal Hill, 21.0-21.9....2.32†
- North Louisiana-Arkansas, 36.0-36.9....2.77-3.02
- Wyoming, sweet, 36.0-36.9....2.85-2.90
- Wyoming, sour, 32.0-32.9....2.63-2.71

Canada (flat prices, at the well)
- Pembina (Alta.)....$2.38
- Leduc-Woodbend (Alta.)....2.53
- Redwater (Alta.)....2.42
- Steelman A (Sask.)....2.435
- Virden (Man.)....2.31

Venezuela (Cargoes, FOB lifting port designated)
- Cumarebo, 47.0-47.9, Tucupido....$3.34
- San Joaquin, 41.0-41.9, Puerto la Cruz....3.10
- Oficina, 35.0-35.9, Puerto la Cruz....2.78-2.80
- Tia Juana, Medium, 26.0-26.9, Amuay....2.30
- Bachaquero, flat, Las Piedras....1.75-1.88
- Tarra, 38.0-38.9, San Lorenzo....2.83
- Lagunillas Heavy, flat, Las Piedras....2.10

†Differential per deg. of grav. varies.

Eastern Hemisphere

Middle East, Persian Gulf (Cargoes, FOB lifting port)
- Arabia, 34.0-34.9, Ras Tanura....$1.90
- Safaniya, 27.0-27.9, Ras Tanura....1.50
- Iran, 34.0-34.9, Bandar Mashur....1.86
- Iran, 34.0-34.9, Abadan....1.81
- Iraq, 35.0-35.9, Fao....1.80
- Kuwait, 31.0-31.9, Mina-al-Ahmadi....1.67
- Qatar, 41.0-41.9, Umm Said....2.05
- Neutral Zone, Burgham, 23.5-24.4, Mina Saud....1.51
- N. Zone, Eocene-Ratawi, 20.5-21.4, Mina Saud...1.38

Middle East, Eastern Mediterranean
- Arabian, 34.0-34.9, Sidon....$2.27
- Iraqi, 36.0-36.9, Tripoli, Banias....2.31

Far East, Cargoes FOB Lutong, Sarawak
- Seria Light, flat....$2.57

KEY TANKER RATES

(Last paid, per long ton, single voyage)

U.S. Gulf-New York, clean (USMC—2½%) $2.78↓
U.S. Gulf-New York, dirty....(USMC flat) $2.85↓
NWI-USNH, dirty....(USMC—40%) $1.65
NWI-UK/Cont., dirty....(Scale—32½%) 21/11*
Persian Gulf-UK/Cont., dirty....(Scale—45%) 32/11*
Persian Gulf-USNH, dirty....(USMC—60%) $5.08

**Sterling.*

DEPT/Marketing

Industry Gasoline Promotion Pushed

But not very far. API marketers agreed to appoint a coordinator to get the ball rolling, but as for embarking on a $3.4-million campaign now, they're hesitant.

The nation's top oil marketers—impressed with the necessity of stimulating gasoline demand—have decided nevertheless to "crawl before we walk or run" in the direction of a full-scale campaign.

The members of the General Committee of API's Division of Marketing declined for the present to go along with an ambitious advertising campaign recommended by Harry L. Moir, chairman of the API Stimulate Gasoline Demand Study Group, and marketing vice-president of Pure Oil Co.

The API marketers made their decision at a special session of the General Committee at New York's Savoy Hilton Hotel. Last week's session was called because it was felt that the marketers had not had enough time at the Chicago meeting in November to consider fully the work of Moir's group.

Only once before have the marketers met in special session—in December, 1958, to consider the placement of service stations along the new federal limited-access highways.

As a start, the API marketers decided to give their Stimulate Demand Study Group permanent committee status and to secure a coordinator to "spearhead" the setting up of an advertising campaign.

The motion, proposed by Willard W. Wright, marketing vice-president of Sun Oil Co., also called for enlargement of the committee, presumably to permit oil company ad managers to take a more active part.

To finance the campaign, Wright's motion called for a prorated assessment plan based on refinery production of gasoline.

The new standing committee will be charged with the responsibility of presenting a campaign to refiners, with the understanding that a national program would not be embarked upon immediately.

Four marketers volunteered to underwrite the cost of the coordinator—if he is hired—for one month each.

First to make this move was Moir, whose company has been covering the expense of Leo Burnett Co., the ad agency which worked with Moir in preparing the presentation.

Dwight T. Colley, vice-president and general manager of marketing for Atlantic Refining Co., also volunteered to carry the cost of the coordinator for a month.

In quick succession, B. L. Ray, director and vice-president of the Esso Standard Division of Humble Oil & Refining Co., and G. L. Werly, manager of domestic marketing for Mobil Oil Co., committed their companies to support the coordinator for a month each.

Wright's motion was also amended to pave the way for other companies to share the support of the coordinator, who will serve for a year.

This action represented much less than the full-scale program recommended last week by the study group.

The proposed campaign involved $3.4-million worth of institutional-type advertising and publicity annually. Its basic objective was to "stimulate gasoline demand by encouraging greater use of the automobile."

The bulk of the advertising ($2,211,955) would have gone to consumer magazines, with the rest going to Sunday newspaper supplements ($833,568) and trade papers ($19,065), and for publicity ($200,000).

To finance the campaign, Moir had suggested that each oil marketer contribute 2% of his advertising budget. But he made it clear that neither the format of the campaign nor the method of financing it were sacrosanct.

(The approved prorated financing program based on refinery production of gasoline, originally suggested by Leo J. Hoar, marketing vice-president of Sinclair Oil Corp., may avoid several objections raised against Moir's 2% plan.)

Moir was insistent on one point however: The campaign should be an industry-wide effort, coordinated by API, and not run as a loosely organized effort conducted by individual companies.

Some marketers had suggested repeating the formula employed in the oil centennial program, in which individual companies were permitted to run centennial ads to fit their own advertising programs. But the tide of opinion generally ran against repeating such a formula for stimulating gasoline demand.

The marketing men who saw the presentation of the proposed campaign were hesitant to commit their companies to sharing its costs—even though they were unanimously enthusiastic about forming some sort of program.

First of all, most of the marketers claimed that their advertising budgets had already been formulated, and they could neither enlarge or reappropriate them to allow for a contribution to the campaign this year.

Second, Dwight F. Benton, sales vice-president for Standard Oil Co. (Ind.) and some other executives were disturbed about the many groups that would profit from the campaign without contributing to it. Crude producers, jobbers, TBA distributors, and motel operators were among those placed in this category.

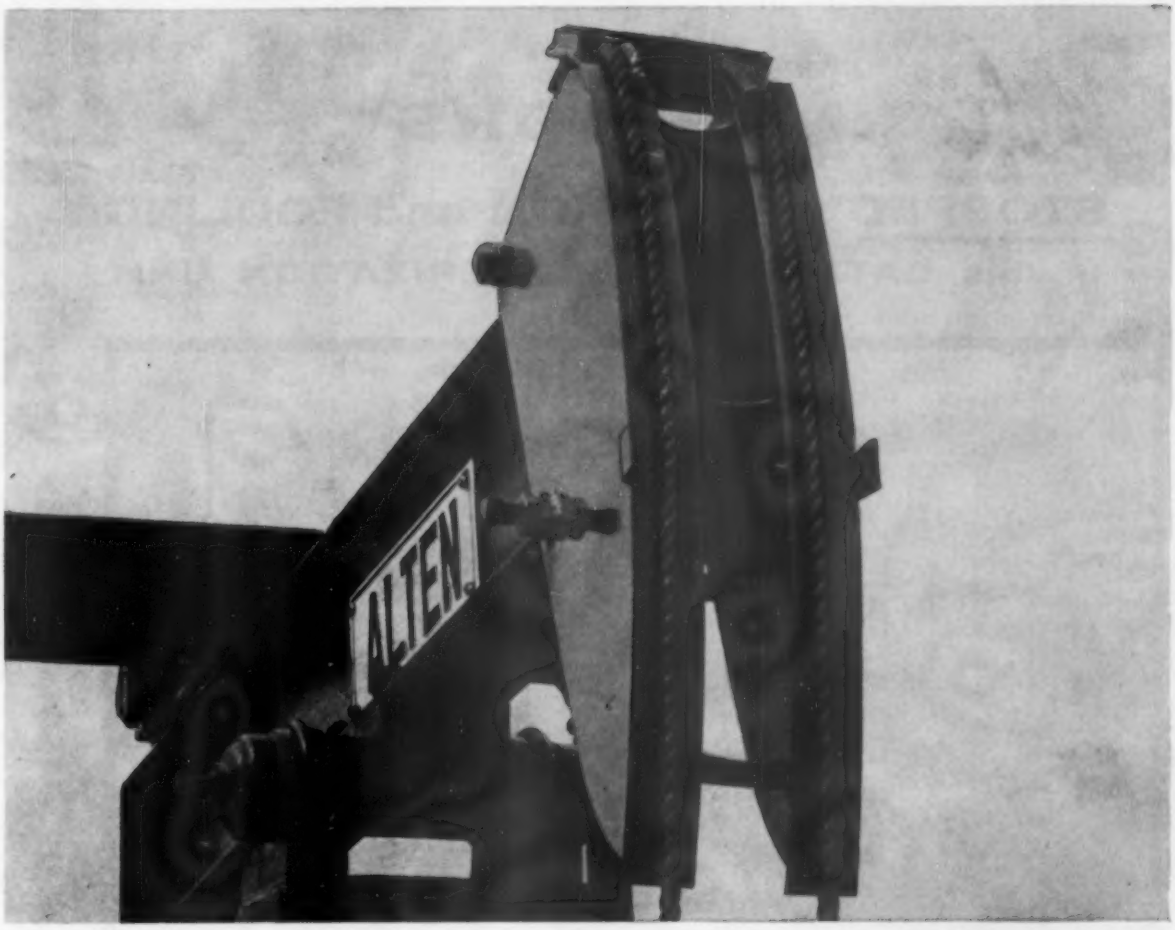
Moir answered this comment with the plea that "we have to start somewhere." And others present observed that it would be too time-consuming to try to get all these groups to participate at the start.

Some oil men were fearful of committing their companies to a campaign that might be either ineffectual or redundant.

The consumer advertising program of the Oil Industry Information Committee, which ran from 1947 to 1956 and involved about $4-million in advertising, was cited at the meeting as an example of a costly but largely ineffectual advertising program.

John Harper, president of Harper Oil Co., suggested that the new campaign might in part duplicate the promotional advertising proposed for the new fuel oil organization, and the advertising expenditures of the Asphalt Institute and API's Committee on Public Affairs. J. D. Elgin, advertising and sales promotion manager for Mobil Oil Co., reminded the marketers that advertising alone cannot be relied upon to stimulate demand.

Elgin strongly favored the idea of an integrated campaign, however, and remarked that the wool, dairy, mink breeding, home building, and beer industries had advertising campaigns. "We have to compete with these industries for the consumers' dollar," he said.



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Perfect alignment with the well is made possible by means of a radiused support between horsehead and beam. Simple adjusting screws make and maintain alignment.

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STOPPED CORROSION and FOULING

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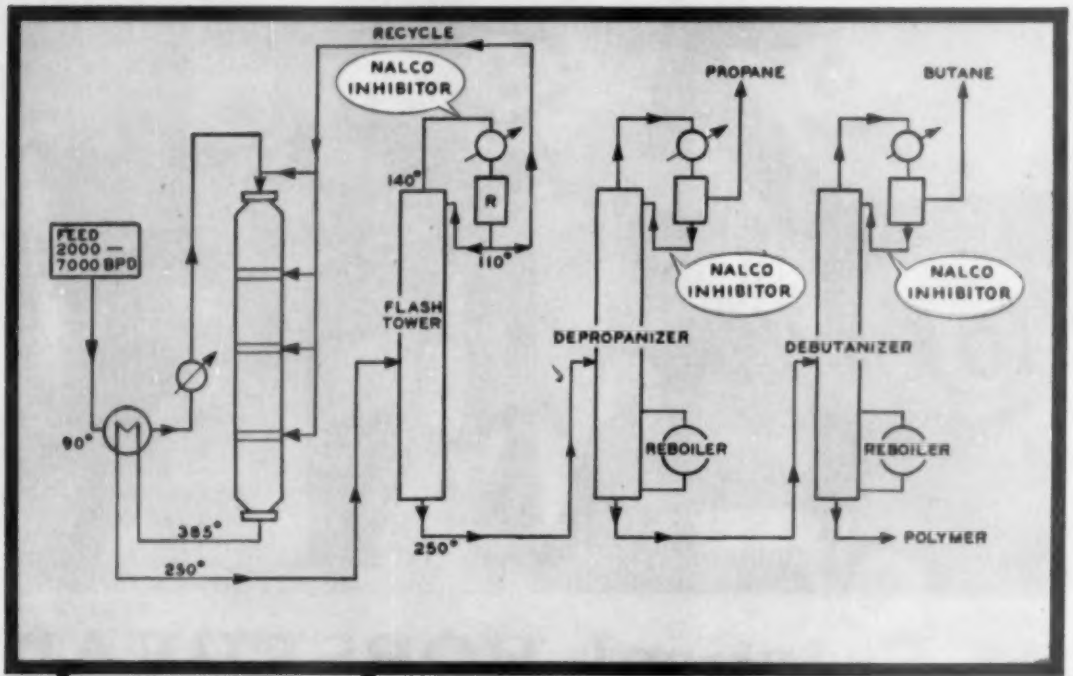

THE PROBLEM

1. *Corrosion* of the steel tube bundles of the flash tower overhead condenser with accumulator water pH of 4.5 or below.
2. *Serious fouling* of screen trays in the depropanizer and debutanizer on normal six-month run.

THE TREATMENT

Nalco Inhibitor fed to the overhead of the flash tower, and to the reflux of the depropanizer and debutanizer towers.

THE RESULTS

1. Iron content of accumulator water reduced from .75 pounds per day to .04 pounds per day.
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CONSIDER further the economy of dosage . . . 10 ppm to flash tower, and 10 ppm to depropanizer and debutanizer. And bear in mind that this was no isolated success story. The same advantages—less downtime, better thruput *and* effective protection for costly equipment—can be brought to your refinery by the use of Nalco Corrosion and Fouling Inhibitors. Ask your Nalco Representative or write direct.

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Nalco CHEMICALS

What's New / IN MARKETING

Service station dealers stand to suffer in many ways if they have to rely on jobbers and wholesalers for their TBA, says R. H. Crum, manager of TBA and specialities for the Esso Standard Division of Humble Oil & Refining Co.

Crum itemized for PETROLEUM WEEK the following dangers facing dealers, if Rep. James Roosevelt (D., Calif.) succeeds in obtaining legislation that divorces the TBA function form integrated oil companies (PW—Dec.18'59,62):

- Dealers would lose oil company national advertising, point-of-sale promotion, product guarantees, credit, and training assistance.
- Many dealers might have to go without TBA items, as jobbers and wholesalers fail to fill the distribution vacuum.
- The prices of TBA products to dealers would certainly not decrease but might very well increase due to the absence of oil company competition.
- Divorcement would curtail product improvement, by eliminating consumer and product research by oil companies.

•

The Los Angeles market is weathering the deluge of Blue Chip trading stamps that threatened to weaken the price structure there.

Blue Chip Stamp Co. has already signed up 3,000 service stations in Southern California with its relatively inexpensive stamp.

Only minor price flurries have occurred since the introduction of the stamp on Jan. 4.

The Blue Chip stamp idea was conceived by several food and drug marketers 3½ years ago as a defensive measure against independent stamp companies.

No franchise agreement is required to carry the stamps, and the stamps are not used in areas where stamp competition is not keen, says Blue Chip.

•

Mobil Oil Co. reports that sales to motorists holding the Hilton "Carte Blanche" credit card have risen steadily since Mobil began honoring them last April.

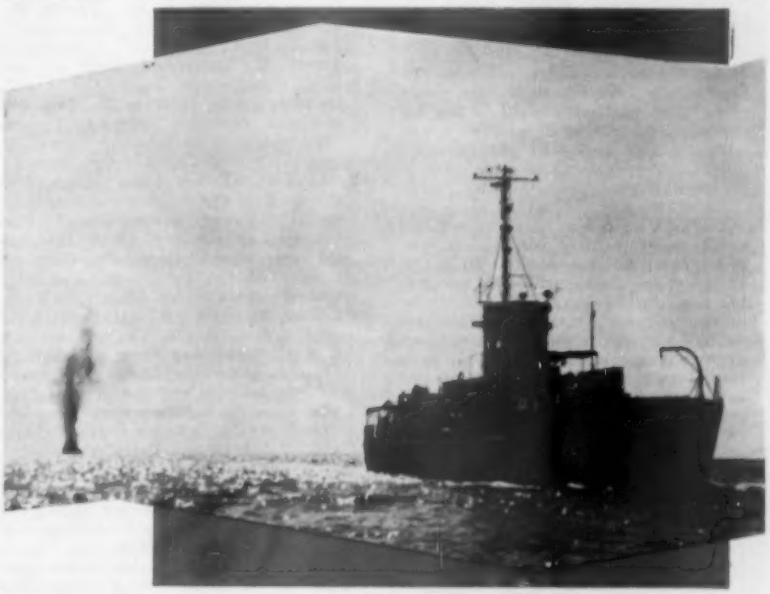
Thus far, "Carte Blanche" sales represent 1% of Mobil's credit card volume, which in turn comprises 20% of Mobil's total retail sales, according to R. G. Shanklin, manager of Mobil's petroleum products division.

Four other oil companies (Shamrock Oil & Gas Corp., Union Oil Co. of California, Tidewater Oil Co., and Continental Oil Co.) followed Mobil last year in accepting the Hilton credit card at their retail outlets.

Standard Oil Co. (N.J.) gained wide public esteem last week by offering to sponsor a dramatic television program without interfering with its content.

The program—"The Play of the Week"—had been in danger of going off the air for lack of a sponsor when Jersey Standard stepped in. Jersey's "Hands-off" policy comes at a time when several TV sponsors have fallen under a pall of criticism for interfering in the shows they support. Jersey's move may set a precedent.

Jersey will sponsor the New York TV shows for three months.



shooting the BLUE MEDITERRANEAN

GSI's Motor Vessel SONIC will soon be conducting marine seismic surveys in the Mediterranean. If you are planning offshore exploration in this area, you can:

- save up to 75% the cost of an equivalent land survey
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Write for additional details on availability of the SONIC, a fully-equipped, 405-ton ocean-going vessel which pioneered the single-ship method of marine seismic surveying.

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DEPT/Personals

F. P. Sewell

W. C. Smith

FRED P. SEWELL and **W. C. SMITH** have been named senior vice-presidents of Delhi-Taylor Oil Corp., Dallas. Sewell has been with the company since 1933, and vice-president of manufacturing since 1952. Smith has been production vice-president since 1950. In their new positions, they will work with **James L. Sewell,** president, in developing company policy, and will function as group vice-presidents in coordinating division operations and policies.

L. C. STEVENS has been named division vice-president for exploration and producing for Mobil Oil Co.'s Los Angeles division. He will assume his new duties about Mar. 31, when he completes a project which will establish an exploration and producing organization in Los Angeles, patterned after the Mobil divisions recently created in Denver, Houston, and Midland. Stevens was formerly vice-president, manager of production, and a director of Mobil Oil of Canada, Ltd., Calgary.

P. R. A. ENSOR is the new chief representative in Lebanon for Iraq Petroleum Co., with headquarters in Beirut. Ensor, who has been with IPC in the Middle East since 1931, was recently general manager for southeast Arabia, which included Qatar Petroleum Co. and companies associated with IPC in that area.

GEORGE E. WILKIN, JR., Republic National Bank of Dallas, was elected president of the Dallas Petroleum Landman's Assn. at its meeting. Wilkin, a trust officer, heads the oil division in the bank's trust department. Three newly elected vice-presidents of the association are: **Eugene H. Gunter,** general manager, G. H. Vaughn Interests, first vice-president; **John W. Storey,** regional landman, Sun Oil Co., second vice-president; and **Hunter E. Akard,** general agent, Texas Pacific Land Trust, third vice-president. Other new officers are: **James W. Beavers,** head of the land department, Hunt Oil Co., secretary; **James R. Townsend,** head of the land department TXL Oil Corp., treasurer; and **William R. Marshall,** assistant division landman, Texaco Inc., sergeant at arms.

V. L. FROST has been assigned to the staff of the manager of exploration for foreign production of Ohio Oil Co., at Findlay, Ohio. He was formerly exploration manager of Oasis Oil Co. of Libya, a wholly owned subsidiary of Ohio Oil. **B. B. Colley,** formerly exploration manager of Continental Oil Co.'s Oklahoma City division, has been assigned to Oasis on a loan basis to succeed Frost. Oasis is the operator of Libyan concessions for the Conorada group, which includes Conoco, Ohio Oil, and Amerada Petroleum Corp.

WEBB B. COOLEY southwest ad valorem tax manager for Mobil Oil Co., Dallas, is the new chairman of the Mid-Continent Oil & Gas Assn.'s state and local taxation committee. Cooley, who has been committee vice-chairman, succeeds **Leonard T. Oswald,** Sinclair Oil & Gas Co., Tulsa. **A. M. Kallenberger,** ad valorem tax manager for Amerada Petroleum Corp., is the new vice-chairman.

GARTH L. YOUNG, vice-president for foreign operations and a director of Signal Oil & Gas Co., Los Angeles, has been elected president of Signal Oil & Gas of Venezuela, Caracas. On Jan. 31, he will succeed **Arthur A. Curtice,** who has resigned.

L. E. WARREN has been named exploration manager of Gulf Oil Corp.'s Denver production division. He succeeds **H. D. Bedford,** who is retiring after 37 years with Gulf. Warren has been exploration manager of Western Gulf Oil Co., Gulf affiliate in Los Angeles. He has been with the Gulf organization since 1945.

L. E. Warren

A. P. Bowsher

A. P. BOWSHER, vice-president of Pacific Petroleums, Ltd., Calgary, has been appointed financial advisor to the chairman, and will be directly responsible to him for special projects. **W. J. Macintosh** has been appointed manager of accounting, and will assume the administrative duties formerly held by Bowsher. Bowsher, who has been associated with the Pacific group of companies since 1938, remains a vice-president and a director, and continues to act as

ADVERTISERS IN THIS ISSUE

ACF Industries Inc. WKM Div.	66-67
Alten Foundry & Machine Works, Inc.	79
Baker Oil Tools, Inc.	24
Baroid Div. Nat'l Lead Co.	34
Caterpillar Tractor Co. Engine Div.	27
Central Soya Co., Inc. Chemurgy Div.	49
Chikson Co.	69
Delta Tank Mfg. Co., Inc.	2
Dodge Div., Chrysler Corp.	37
Dowell	8
Drilling Specialties Co.	65
Du Pont, Petrol Chem. Div.	73-74
Ethyl Corp.	4-5
Geophysical Service Inc.	80
Grove Valve & Regulator Co.	55
Harbison-Fischer Mfg. Co.	33
Hercules Powder Co.	48
Hercules Tool Co.	38
Houdry Process Corp.	53
Houston Oil Field Material Co.	Cover 3
Hughes Tool Co.	Cover 4
Humble Oil & Refining Co.	63
Ingersoll-Rand Co.	1
International Harvester Co.	46-47
Johnston Testers	28
Koppers Co., Inc.	39
Magnet Cove Barium Corp.	21
McGraw-Hill Book Co.	20
Milwhite Mud Sales Co.	6
Modern Films Corp.	14
Nalco Chemical Co.	81
National Supply Co.	41-44
Parkersburg Rig & Reel Co.	12-13
Petroleum Electric Power Assn.	58
Polyken Prods. Div. Kendall Co.	70-71
Rector Well Equip. Co.	60
Republic Steel Corp.	56-57
Royal Bank of Canada, The	11
Schlumberger Well Surveying Corp.	Cover 2
Smith Corp., A. O. Smith-Erie Div.	31-32
Southern Marine & Aviation Underwriters, Inc.	40
Southwestern Industrial Electronics Co.	52
Standard Oil Co. (New Jersey)	51
Vogt Machine Co., Henry	72
Warren Petroleum Corp.	68
Western Co., The	23
Wilson Supply Co.	7
W-K-M Div. of ACF Industries, Inc.	66-67
Classified Advertising	83

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350 Park Square Bldg.
Hubbard 7-7160

Chicago 11 — Edward A. Callahan Jr.
H. Sherman Davis
520 N. Michigan Avenue
Mohawk 4-5800

Cleveland 15 — J. E. MarArthur
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55 Public Square
Superior 1-7000

Denver 2 — J. W. Patten
Tower Building, 1700 Broadway
Alpine 5-2981

Houston 25 — D. O. Hanson
724 Prudential Bldg.
Jackson 6-1281

Los Angeles 17 — Peter S. Carberry
1125 W. Sixth St.
Huntley 2-5450

New York 36 — David G. Sawyer
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Oxford 5-5959

Philadelphia 3 — W. A. Potter
6 Penn Center Plaza
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San Francisco 4 — William C. Woolston
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909 Enterprise Bldg.
522 South Boston
Gibson 7-5594

England, London E. C. 4 — E.E. Schirmer
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95 Farrington St.

treasurer. Macintosh has been with Pacific since 1950. **J. B. Ballem** becomes executive assistant to the executive vice-president, responsible for broad corporate duties. Ballem, who joined the company in 1956, was formerly manager of the services department.

W. I. PATRICK became president of Esso S.A.P.A., Argentine subsidiary of Standard Oil Co. (N. J.), in Buenos Aires, on Jan. 1. He succeeds **B. G. Tchalidy**, who has resigned. Patrick, who has been a resident of Argentina for the past five years, is presently a vice-president of the company.

VINCENT L. VERDIANI has been named manager of Sun Oil Co.'s newly created fuel oil department, in Philadelphia. The new department combines cargo, industrial, Sunheat, and distributor fuel oil sales. **Anthony L. Anderson**, manager of Sunheat and distributor sales since 1958, has been named assistant manager. **Kingsley E. DeRosay**, manager of cargo and industrial fuel oil sales, will remain with the new department on special assignment until his forthcoming retirement. Verdiani, who joined Sun's marketing staff in 1947, was most recently manager of the wholesale department in the New York region.

V. L. Verdiani

P. G. Drew

PRESTON G. DREW is the new sales assistant to the vice-president of Shell Oil Co.'s West Coast marketing divisions, with offices in San Francisco. Drew, who was formerly manager of the Portland (Ore.) division, will head Shell's western wholesale sales activities. He replaces **C. B. MacGlashan**, who has retired. Drew, with Shell since 1928, was named assistant sales manager of the company's head office marketing organization in 1955, and two years later was appointed special assistant to the manager, head office marketing departments. In 1958 he began a special assignment on the staff of the vice-president, West Coast marketing divisions, and later that year became manager in Portland.

RAY POWELL moves up to assistant general manager of the refining department of Texaco Inc., at Houston. He was formerly superintendent of Texaco's refinery at Lawrenceville, Ill. **Frank D. Dorr**, assistant superintendent at the Lawrenceville Works, succeeds Powell. **Harry R. Robinson** succeeds Dorr as assistant superintendent. Robinson was formerly superintendent in charge of maintenance and construction. **Donald N. Graham**, formerly supervisor of operations, succeeds Robinson, and **Robert C. McCay**, formerly chief process engineer, succeeds Graham. **W. Michael Neuman**, senior product engineer in Texaco's petrochemical department in New York, succeeds McCay.

JACK RAGLIN moves up to the newly created position of assistant director of public affairs for Continental Oil Co., with offices in Houston. He was formerly administrative assistant to Conoco's president. In his new position, he will direct the company's affairs program among employees.

NEWTON B. DISMUKES moves up to production manager of Mobil International Oil Co.'s producing department. He will move to New York from Venezuela, where he has been assistant production manager for Mobil Oil Co. de Venezuela. Dismukes succeeds **G. R. Lucie-Smith**, who has been appointed general manager in Libya for Mobil Oil of Canada, Ltd.

STEVE W. SHAMBAUGH, vice-president and general manager of Reading & Bates Drilling Co., Ltd., becomes president of the Canadian Assn. of Oil Well Drilling Contractors. Shambaugh, formerly vice-president of the association, succeeds **F. T. Glasscock**, Pennant Drilling Co., Ltd. **R. H. Bullied**, secretary and general manager of Cascade Drilling Co., Ltd., is the new vice-president. **William Booth**, Commonwealth Drilling Co., and **Art Weibe**, Regent Drilling Co., are new directors.

JAMES L. WILSON, regional operations manager for Atlantic Refining Co., has been elected chairman of the Houston chapter of the American Petroleum Institute. He succeeds **Duke Ellington**, Baker Oil Tools, Inc., who headed the chapter last year. Other new officers are: **Darrel Smith**, Texaco Inc., first vice-chairman; **Ken R. Joynt**, Mobil Oil Co., second vice-chairman; **W. W. Cathriner**, Dunwoody Pipe & Supply Co., secretary-treasurer; and **George H. Kimbrell**, Reed Roller Bit Co., assistant secretary-treasurer.

JOHN R. PENN, JR., Ft. Worth independent, has been elected a director of Texas Pacific Coal & Oil Co., Ft. Worth. His father was president of the company from 1934 to 1939.

G. CURTIS MAYES is the new joint-interests manager of Mobil International Oil Co., overseas operating division of Socony Mobil Oil Co. He will advise on producing matters related to the company's joint interests in the Middle East. Mayes has been with the Mobil group of companies since 1941. He was most recently assistant to the joint interests manager, **Charles W. Boughton**, who is retiring.

ARTHUR H. DENNY becomes Canadian division gas superintendent for Pan American Petroleum Corp., in Calgary. He was formerly manager of Pan Am's Elk Basin gasoline plant, in Powell, Wyo.

HUGH S. KELLY becomes manager of the product planning department for Mobil Oil Co., New York, domestic operating division of Socony Mobil Oil Co. He joined the company in 1941 as a chemical engineer in the technical service department. In 1946, he was named staff engineer at the headquarters gasoline and fuel oil department. He has been manager of product engineering in the marketing department since 1952.

H. S. Kelly

P. E. Kuhl

P. E. KUHL returns to his former position as assistant general manager of manufacturing for the Esso Standard division of Humble Oil & Refining Co., in New York. He has been on a loan assignment in Iran as manager of the Abadan refinery for the Iranian Consortium. Kuhl, who has been in the Esso organization since 1926, became assistant general manager of the manufacturing department's East Coast division in 1949. He was named assistant general manager of manufacturing in 1950, and left for Abadan in 1955.

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The 60s: Oil's Most Significant Decade

THE MOST SIGNIFICANT PETROLEUM DEVELOPMENT of the 1960s undoubtedly will be the start of commercial production from the vast tar sands reserves of Western Canada.

A four-company group—Imperial, Richfield (L. A.), Cities Service, and Royalite—has taken the big step toward unlocking what is believed to be a 300-billion bbl. reserve of petroleum liquids (PW—Jan.15'60, p9). A lot more research will be required, but oil men don't give up easily.

The group's present investment of $3.5-million in a pilot plant—a substantial investment in any field—is considered just a starter. Substantially more will be invested in the project before the group has all the answers it is seeking.

The goal is to develop mining, extraction, and processing techniques to deliver oil from the tar sands to markets on a competitive basis with other petroleum fuels.

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The reserves of oil locked in the sands along the Athabasca River are greater than the world's proven reserves of liquid hydrocarbons. The now-believed 300-billion-bbl. reserve is enough to make the entire North American continent—by far the largest consuming area in the world—self-sufficient in oil for decades to come.

And waiting to be tapped once commercial production is established from Canada's tar sands, are the tar sands and the far more extensive—nearly 1-trillion bbl.—shale oil reserves of the western U. S.

ALL OF THESE NEW SOURCES OF SUPPLY could—if necessary—be connected by pipeline to the most distant points in North America, a far surer delivery method in an emergency than tankers.

The significance of the eventual development of tar sands oil should be unmistakably clear:

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- It serves notice to all foreign governments, which continually have been taking a bigger bite of income from oil companies operating within their borders, that the egg cannot always be golden.

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